AMERICAN Journal of Mining,

Engineering, Geology, Mineralogy, Metallurgy, Chemistry, etc.

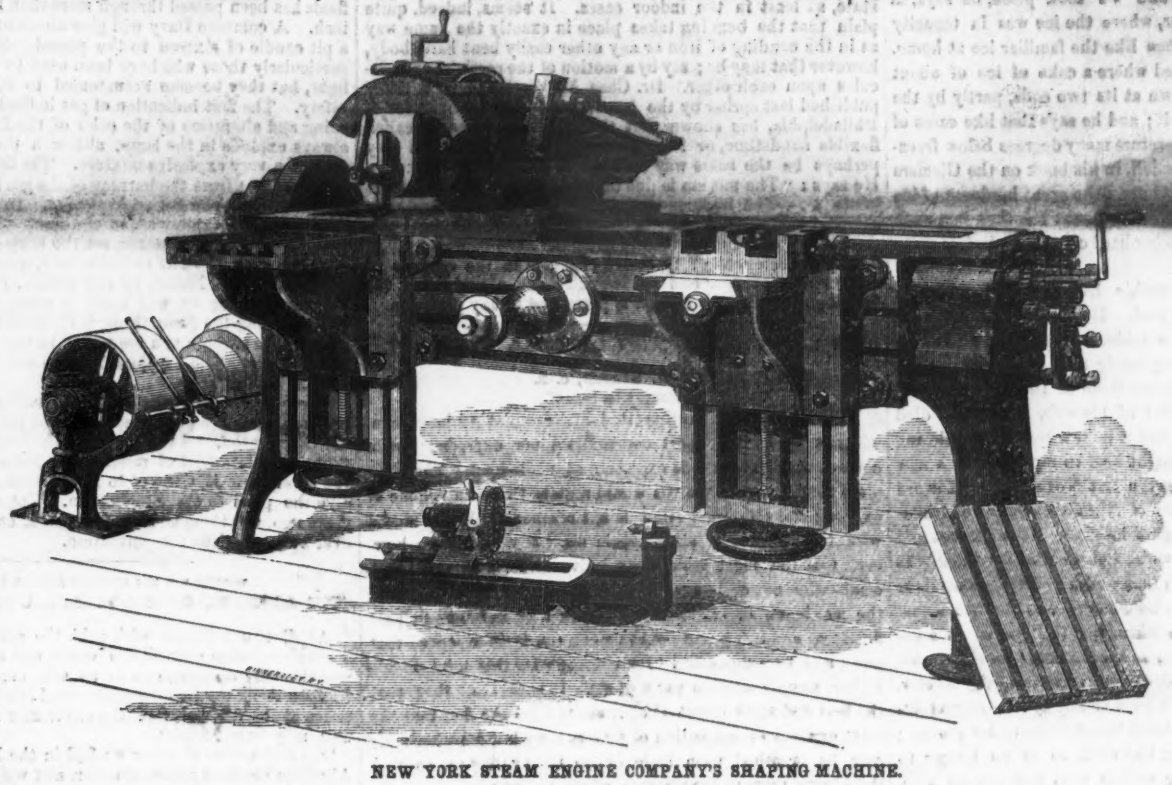
VOLUME V.—Number 6. New Series.

NEW YORK, FEBRUARY 8, 1868.

$3 A Year in Advance. Single Copies Ten Cents.

SHAPING MACHINE.

Our engraving represents one of the most important of modern inventions, and one of the best specimens of its kind. Before the invention of the slide-rest, by Henry Maudsley, of London, the only means by which plane surfaces of metals could be produced was by chipping and filing. These operations were tedious, unsatisfactory, and expensive, so much so, that engineers and machinists had to avoid all forms in the construction of machinery requiring a true plane to be produced on iron or steel, or, indeed, on any metal; consequently, absurd devices were employed, where the production of a plane or a prism with true sides would have rendered the machine perfect in its working, and beautiful as an object of art. Our readers are aware that castings, when they come from the foundry, have rough and sandy surfaces, which, technically speaking, are termed the "skin" of the castings; this skin is generally hard, and requires a well-tempered chisel or tool to cut through it. Forgings, as they leave the steam-hammer or the hands of the blacksmith, have also uneven surfaces, and these, however good they may be as "smooth forgings," are altogether too rough for the working parts of any engine or machine. Formerly, when large cranks of steam-engines were to be "finished" or polished, weeks were spent in chipping off hard and uneven surfaces; then many tedious hours were consumed in filing with rough and smooth files, draw-filing, and finishing up with two or three sorts of emery paper. The vast improvements in machinery, and especially in machinist's tools, have dispensed with all this unprofitable and laborious work. The introduction of planing machines enabled the engineer to have large finished surfaces, and what the slide-rest had done for the lathe as regards cylindrical forms, the planer did for plane surfaces, so that now all forms bounded by straight lines and plane surfaces, can be produced with mathematical precision, a result altogether unattainable by hand work. The shaping machine may be considered a modification of the planer, with this difference, that the cutter moves instead of the table, and the stroke is comparatively shorter and quicker. The automatic reverse motion of planer tables is obtained by constantly shifting a straight and a cross belt on tight and loose pulleys, and when narrow surfaces require planing, this constant interchange of belts occasions much friction, and consequently needless wear and tear. The shaping machine planes narrow, straight, or curved surfaces. On referring to the engraving, it will be observed that this machine has a fixed bed, upon which two adjustable tables or rests slide. To these tables the work to be planed and shaped is fastened. Each table is provided with centres, chucks, and vises. The cutting bar has fourteen inches stroke, and will cut or plane a piece 14 inches by 4½ feet long; the cutter has quick return motion. By means of a worm and segmental gear, the cutter can be adjusted to cut at any angle. In this machine, the sides of square or hexagonal nuts and the teeth of gears can be planed and shaped. Rocker-arms, links, boxes, plates, levers, cross-heads, frames, and jaws; in short, all the parts of engine and locomotive work can be planed and shaped to such nicety that little is left for the vise-man and fitter to finish. We notice that all the large locomotive establishments in this country are constantly adding to their number of shaping machines, which although of different designs and proportions, are invariably favorites as labor-saving machines. The shaping machine, as here represented, is manufactured by the New York Steam Engine Company, and can be seen in variety at the New York Machinery depot, which at present is at 222 Pearl street; on the 1st of March next the business of the companies will be removed to extensive rooms at 126 and 128 Chambers street, New York City. Mr. George Place is president of the New York Steam Engine Company.



NEW YORK STEAM ENGINE COMPANY'S SHAPING MACHINE.

Mining Explosions.

In a recent lecture before the British Royal School of Mines, Mr. Warrington Smyth spoke at some length on the explosives used in mines for blasting purposes, and after showing specimens of the coarse-grained gunpowder used by miners, he said that one of the most important of modern explosives was nitro-glycerine, a substance which, within the last few days, had been productive of such a sad loss of human life at Newcastle-on-Tyne. Accidents were apt to produce a violent prejudice against that which caused them; but all explosives, until they were understood by the men who had to deal with them, were liable to produce accidents. Although gunpowder was so well known, they must expect accidents, even with that, when it was put into the hands of persons who did not know how to use it; and so with all other dangerous materials. The three explosives now chiefly used by miners were gunpowder, gun-cotton, and nitro-glycerine. Gunpowder, as the oldest and best understood, was most used and best liked by the miners. Gun-cotton would probably, in the future, play a much more important part in these operations than it seemed likely to do a few years ago. Some important improvements had been introduced into its preparation by the Austrian Artillery Department (and those improvements were now being thoroughly tried, and the material tested, by Mr. Abel, at Woolwich), rendering it more useful and safe than it was formerly. It was now manufactured into a kind of rope, and could be cut to the exact lengths wanted by miners, and if it turned out that it would bear keeping in a damp atmosphere better than gunpowder, it would come into use in mining far more largely than it had hitherto done. With regard to these three explosives he could state an interesting fact which had come within his own knowledge. In the North Wales slate districts enormous quantities of explosive materials were employed, and it was the practice, in bargaining with the workmen, to allow them to select whichever explosive they preferred from the stores of the employers. It was found that, although the majority of miners preferred gunpowder over gun-cotton and nitro-glycerine—although they were well acquainted with the conveniences of the one and the enormous force of the other—the most careful of the men were fast taking to nitro-glycerine, which they had hitherto managed without the slightest accident, and with the most profitable results in respect to the work done. Nitro-glycerine had ten times the force of ordinary gunpowder, and if it could be used with the same amount of security, it needed no argument to show how advantageous it would be in mining. It certainly was much easier and simpler in its mode of application. Thus, instead of the "tamping" required when gunpowder was used, and the adjuncts required by gun-cotton, all that was necessary was to fill the hole with water and pour the nitro-glycerine in. It sank to the bottom by its own specific gravity, and the fuse being lighted, the explosion took place with a force and effect far greater than anything produced by powder or gun-cotton. He had lately been invited to witness at Llanberris a series of experiments on a newly-invented explosive. It was the discovery of M. Nobel, of Hamburgh, who was the inventor also of nitro-glycerine. It was a powder, and if it proved to be capable of safe removal from place to place, it would, no doubt, also come very much into use. There was, however, a peculiarity about it, which also belonged to nitro-glycerine. When a train of it was laid on a board it could be fired by a match, with no more noise or effect than so much gunpowder; but if it were exploded by the percussion of a sudden blow it went off with a force and report that were tremendous. It exerted a kind of force which was exactly that which was required in mining, and he looked forward to the time when it and nitro-glycerine would become auxiliaries of the greatest importance to the work of the miner.

A New System of Lighting Streets.

On the Place de l'Hotel de Ville (Paris) a new system of lighting streets was recently tried with signal success. The experiments were tried under the direction of the inventors, MM. Tesser du Mothay and Marechal. The light produced is of the purest white, like that of moonbeams, and which allows one to read a newspaper at twenty-five paces from the projector, and admits of the most delicate shades being distinguished. The discovery was made by a chemist *preparateur*, who had no idea whatsoever of inventing anything new as to the lighting of cities. He was merely experimentalizing, with the hope of discovering some means of taking photographs at night. He, however, hit upon a new and magnificent light, which will evidently replace gas with great advantage, not only in an economical point of view, but likewise in quality and quantity of light obtained. So intense is the glare produced, that it will probably be difficult to modify it sufficiently for use in theatres or in private dwellings, the more so as one of the shareholders confided to me the fact that *rouge, poudre de ris*, sepia tints laid on eyebrows, and every species of facial adornment, is made painfully visible. The combustion of ordinary gas by oxygen is the principal secret of the process. A small cylinder of magnesium interposed in the centre of a jet in combustion becomes luminous, and produces a quantity of light measured at sixty times that which would be produced by ordinary gas. A cubic metre of this new species of gas costs but 72 centimes—7½d. Thus three cubic metres of ordinary lighting gas and four cubic metres of oxygen, the price of which amounts to 8f. 90c., affords, according to the experiments just made, the same amount of light as would be produced by 100 cubic metres of ordinary gas, the price of which would be 54f., thus realizing for the same amount of light an economy of 45f. 10c.—*London Hera'd.*

Original Papers.

[WRITTEN FOR THE AMERICAN JOURNAL OF MINING.]

BENDING MARBLE.

By BENJAMIN SMITH LYMAN, Mining Engineer.

In many mountain gaps, the beds of rock that form the mountain are seen to lie in the shape of a complete arch or saddle on a large scale; and almost all natural beds of rock, if followed for any distance, are found to be more or less bent. It has long been well known (however unlikely or impossible it may have seemed at first sight) that such rocks once lay flat at the bottom of a sea, and have since been raised into folds, and that, too, long after the rocks had become hard, more or less as they now are. Some have maintained that these folds in the rocks were suddenly made by a violent and rapid crumpling or waving of the earth's crust; others insist that the folding of the rocks has been extremely slow and gradual, like many other grand operations of nature. It is hard to believe that any sudden folding could take place without breaking and crushing the rocks into small pieces, if not into powder; but the rock never seems broken up anything like so much as that, and it remains, in many saddles, almost or quite unbroken; or, at least, the breaks or joints in it seem to be caused less by the uplift of the saddle than (as cleavage planes) by the pressure from the sides. The supposition of a slow folding of the rocks without breaking is not so desperate; for certain observed facts show the possibility of bending very stiff and brittle bodies, such as marble even, without breaking them, if the bending be only slow enough.

Many a school child, no doubt, has discovered that a stick of cold sealing wax, brittle as it is, can with care and patience be bent slowly without breaking. Dr. Kane, in his history of the first Grinnell Arctic Expedition, tells of bent blocks of ice, and he gives three or four figures of them. One block of ice, eight feet thick, more than twenty feet wide, and more than fifty feet long, that rested only on its two ends, bent gradually by its own weight, until in the course of two months only its centre was depressed five feet, and the bending was stopped by a new support; and this took place, he says, in the depth of a Polar winter, where the ice was in tenacity more like glass or granite than like the familiar ice at home. Another case is also sketched where a cake of ice of about the same size was bent down at its two ends, partly by the weight of other blocks upon it; and he says that like cases of the bending of ice at a temperature many degrees below freezing, are not uncommon. Tyndall, in his book on the Glaciers of the Alps, has also remarked upon the great hardness of ice at very low temperatures; and it no doubt has then just such properties as are common to other hard crystalline bodies quite free from fibre.

A certain slab of bent marble has attracted notice in Philadelphia for some years past. It is a flat slab that, until lately, rested on posts, like a table, in the burial ground on Arch street, above Fifth, very easily seen by the passers-by in the street. It was the grave-stone of Dr. Wm. Shippen, who died 11th July, 1808, and of his wife, Alice, who died 28th March, 1817; but as it had to be removed on the closing up of that ground, it was thought best to replace it by a new one, and the bent stone was given last November, by Edward Shippen, Esq., to the Academy of Natural Sciences of Philadelphia, as an object of geological interest. It is six feet and a quarter long by three feet wide, and two inches thick. It is bent down in the middle an inch and a half from a straight line drawn bias from the north-west corner to the south-east corner; but the bend is so striking to the eye as to seem much more than that. The stone simply rested on six marble posts without being fastened, except imperfectly by mortar, to any of them, and must have bent merely by its own weight. The posts rested on separate brick foundations under ground; but the northern middle post had sunk so as no longer to touch the slab, and the other middle post had settled also. The space between the inner sides of the end posts lengthwise of the slab was four feet and three-quarters. The marble seems to have come from a quarry near Norristown, Pennsylvania.

One of the workmen who helped remove this stone, said he had elsewhere removed another stone like it, last year, that had been bent two measured inches from straight; but his memory seems to have failed him in regard to the cemetery it was removed to or the name upon it. A smaller amount of bending in such stones is perhaps not at all uncommon; and perhaps it would be found in most such flat slabs when they are not supported all round the edges by a stone or brick wall, enclosed, or by six posts that rest upon either a solid slab below, or upon a solid foundation wall that goes all round. Out of some forty such old stones lately removed to the Mount Vernon Cemetery at Philadelphia, most of them at the time still piled up there in heaps, eight were found, on the third of last November, to be slightly bent; one of them had been placed on a brick enclosed support, and another rested on six posts that stood on a flat slab below. One only had no inscription on its hollow side, and that may have been a slab that had lain on the ground for the posts of a slab above to stand on. A marble cutter, who had charge of the removals, thought this slight lack of straightness in these stones might have come from their not having been sawn straight originally; but it would be then an odd coincidence that they should all bend downwards, towards the ground, as the inscription in seven cases shows they did. So much for bent gravestones.

An old marble mantlepiece of fine white foreign, apparently Italian, marble in the front room of N. Petry's Restaurant, No. 307 Walnut street, Philadelphia, shows that such bending is not confined to merely one variety of marble, and does not require the moisture of the weather. Right over the opening of the fire-place is a marble slab four feet and a quarter long by seven inches wide, standing on edge; over that is a flat slab an inch thick, and on top of that is the mantle shelf, nine-eights of an inch thick, over ten inches wide, and five feet and a third long. Each of these three pieces is bent down in the middle very strikingly, although the bend measures only half an inch from straightness. The top slab is cracked in the middle, but only part way through, and the others are not cracked at all. The heat of the fire by lengthening the lower side of the slabs may have helped the action of the weight in bending them.

It is said that Prof. Horsford noticed at Cambridge some years ago a similar case of the bending of marble, this time by the mere effect of heat in opposition to the weight. An apparatus for heating a room in his house with hot water had a thin marble slab on top, and the two ends of the stone were bent upwards by the lengthening of the lower side through the heat.

All these cases are quite enough to show that even marble can bend slowly without breaking; and, if marble may bend, why may not ordinary sandstone or any other stones, though perhaps still more slowly? Experiments with marble and other stones might be made, to show more exactly how rapid and how great this bending may be in each case.

Tyndall seems to attribute the bending of ice, but little below the temperature of freezing, in all cases to the principle of "regelation," and to suppose that there is a constant breaking and a melting or wetting of the surfaces of fracture, and then a freezing together again in a new position; but he does not even mention the bending of ice at a much *lower* temperature. This explanation has clearly no bearing on Dr. Kane's bent ice, nor on the bent marble; for even if the crystalline particles do rearrange themselves in a lasting manner, there can certainly be no liquefaction here, no crystallizing from a liquid state, at least in the indoor cases. It seems, indeed, quite plain that the bending takes place in exactly the same way as in the bending of iron or any other easily bent hard body, however that may be; say by a motion of the particles or molecules upon each other. Dr. Chas. M. Wetherill, in a letter published last spring by the Academy of Natural Sciences of Philadelphia, has shown that the bending of the so-called flexible sandstone, or itacolumite, takes place in what may perhaps be the same way on a larger scale, or more rudely. He says: "The motion is due to innumerable ball and socket joints. . . . The fragments of quartz are very small and very sharp; twenty, thirty or more of these sand particles are cemented to each other to form irregular compound molecules. The protuberances of these are engaged in the cavities of neighboring groups, and so irregular and abundant is the jointing, that a slight motion is permitted in any direction.

ON THE VENTILATION OF COAL MINES—II.

BY J. W. HARDEN, C. E.

Continued from Page 67.

Fire-damp, or light carburetted hydrogen, as we have seen, will not by itself support combustion, nor explode; but in contact with oxygen it is explosive at white heat. The complete combustion of the gas would require twice its volume of oxygen; and this proportion is not reached until it is mixed with ten volumes of atmospheric air. It would seem, however, that the most violent explosive force is obtained by a combustion not quite complete; as Sir Humphrey Davy found the maximum of explosive power in a mixture of one part fire-damp and seven parts of air, when the force exceeded that generated by gunpowder. Hutchinson puts this point a little higher, namely, at nine parts of air. It is evident, then, that the first and most direct danger arises from the fact that the most explosive combination of this gas with atmospheric air may be breathed with little or no inconvenience, so that the miners may, in the absence of proper precaution, remain unconsciously in such an atmosphere, after it has become perilous. A second source of danger is the low specific gravity of the carburetted hydrogen, which causes it to gather, as I said in my last article, in the hollows and inequalities of the roof, or in the upper parts of goaves and old workings. The workings may be apparently free from it and well ventilated near the floor, and up to a height above where the men ordinarily work, and the lamps are placed; but by raising a light, perhaps to examine the condition of the roof, it is brought into contact with the fiery gas, and an explosion ensues, where all was assumed to be safe. The greatest care should be exercised on entering an unfrequented or ill-ventilated part of the pit. Indeed, this never should be done with a naked light.

Connected with this property of the gas is its frequent appearance, where it is least expected, in mines not known to be fiery. In a certain district coal had been mined for half a century, and no gas had ever been recognized; since the universal mode of working had been by an inclined plane below bottom, and the plan known as "long wall," so that the gas, assisted by its own levity, had floated unsuspected along the roof, and escaped as fast as generated. A drift being subsequently put in above bottom, and left for twenty-four hours, sufficient gas collected (the drift being to the rise of the seam, and not "thurled," so that the gas could not escape as before) to explode and injure the first man who entered.

Another frequent source of danger is the formation of reservoirs of confined gas in the strata of coal. A mine may be well ventilated; yet on such a reservoir being tapped, with sufficient ventilation to dilute it to the explosive point, and a naked light near, a terrific explosion will ensue. Against such casualties it is difficult for human foresight to provide, since even the safety-lamp is not an adequate protection in the presence of a strong current of explosive gas from one of these "blowers." On the first of last October, an instance occurred at the Stafford pit, near Barnsley, England, when the self-extinguishing character of the safety-lamps used (the Stephenson) and, strange to say, the great force and volume of the gas set free, were all that saved the lives of all the men in the north side of the pit. This is a well-ventilated mine; but when, on the occasion referred to, a large quantity of the roof fell, and an immense escape and expansion of gas took place, accompanied with a loud noise, the ventilation was temporarily arrested by the disturbance, and, for a distance of twelve hundred feet, the air was so fouled that every lamp, but two, was extinguished by its own action, and these two were carefully put out. The safety-lamp, however valuable, ought not to be relied upon for the prevention of explosions. The ventilation ought to be such that, under ordinary circumstances—that is to say, in mines that exude fire damp and may be called fiery, but yet are not liable to sudden outbursts of gas, it would be safe to work with naked lights. I do not say that under such a condition of things I would so far risk the safety of the pit as to work with naked lights, but that the ventilation ought to be such that a naked light would not be unsafe.

The safety lamp acts, not, as many suppose, by preventing the gas reaching the flame within, but by preventing the flame reaching the gas without. The cooling property of the gauze conducts away the heat, and so reduces the temperature of the flame in its endeavor to pass, that it has not power to ignite the gas. But with a strong current of foul air the flame may be made to pass the gauze, and so communicate with the gas outside; in this case the lamp is not safe. Sir Humphrey Davy knew this when he said "the same mesh" (in the gauze) "which arrests the flames of explosive mixtures at rest, will suffer them to pass when in rapid motion." Sir Humphrey recommended 784 apertures to the square inch, since which flame has been passed through more than 1000 apertures to the inch. A common Davy will give about one-fourth the light of a pit candle of sixteen to the pound. Miners do not like it, particularly those who have been used to work with a naked light, but they become accustomed to it, and value it for its safety. The first indication of gas in the lamp will be a lengthening and alteration of the color of the flame, but it will not always explode in the lamp, although the indication may be that of a very explosive mixture. The lamp will suddenly become red hot from the burning of the gas inside it, when, without great care, you get an explosion. In all such cases, carefully draw down the wick of the lamp to extinguishing, and get away, or what is better, set the lamp on the floor and put your cap over it. The carbonic acid, generated by the flame, will put it out. Never, by any means, rush suddenly away; the act of doing so will cause a current that will be most likely to drag the flame through the gauze of the lamp, and so produce that which you are trying to escape. I am speaking of the Davy. The Stephenson lamp will be put out by the explosion inside it.

There are many varieties of the safety lamp, each having preference over the other in some one particular. The Davy, the Stephenson, and the Upton & Roberts, I look upon as the best. The late trial of merit at the Barnsley Gas Work, and the severe test it was put to in the Stafford pit, here related, give the palm to the Stephenson. Upton & Roberts', a few years ago, was thought an improvement on it, but no lamp will ever be a substitue for ventilation.

[WRITTEN FOR THE AMERICAN JOURNAL OF MINING.]

THE AMOUNT OF SILVER IN USE AMONG MEN.

As silver constitutes, with gold, the great medium of commercial exchange over all the world, and as in older times it was the only medium, and is so still, among the nations of Eastern Asia, the following historical reminiscences and estimates as to the value of the silver now in the possession of men, may be of interest.

The first notice of silver we find in the Bible mentions that Abraham received *pieces* of silver, and weighed out *shekels* of it, which were *current money among the merchants*. It appears, however, that regular silver coin was only made about 900 years before our era by the Æginetans (see the Parian chronicle). A Babylonian inscription found by Rawlinson states that the City of Damascus, after its conquest by Phuluk, had to pay a tribute of 2,300 talents of silver. Plinius states that Cyrus collected from his Asiatic victories an amount of silver which, reduced to our standard of the gold dollar, would equal 40,000,000,000. This statement is almost incredible, as will appear from the following calculation about the real amount of silver in different hands, founded on reliable evidence:

Herodotus states that the nations subdued by the Persians, paid a yearly tribute of silver equal to 15,000,000 dollars. They paid this, say ten years. - -	$150,000,000
Carthage paid to Rome after the second Punic War $180,000 for fifty years. - - - - - - - -	9,000,000
Spain paid to Rome $2,240,000 for twelve years, - -	27,000,000
Silver was, in consequence, so abundant in Rome that Caligula loaded 125,000 pounds on armor and weapons used in the circus, worth, at the present rate, $2,500,000.	
It appears from Plinius that the silver mines of Spain were worked already, 2,000 years ago, to the distance of one and a half miles from the surface and Polybius states that the Carthagenians had 40,000 men engaged there in that business. The amount they took out is estimated at - - - - - - - - - -	100,000,000
The Moors continued this mining very successfully, and took out an amount estimated at - - - -	55,000,000
After the Moors, the mines were deserted until reopened, in 1571, by the Fugger family (German) who extracted, from 1571 to 1607, - - - - - - -	15,000,000
Again the mines were idle till 1825, since which time English companies have taken out about - - -	90,000,000
In Germany silver mining was commenced about the year 700; in Bohemia and the Harz in 1000; in Tyrol and Saxony in 1200; in England, France, Hungary and	

Norway in 1400. The total amount produced by all these countries is estimated at - - - - - - - 200,000,000

But all this was put in the shade when, after the discovery of America, silver was found in Mexico and South America, where it had been mined by the natives, for an unknown period of time, but in so imperfect and primitive a manner, that the treasures found by Europeans far surpassed those in the hands of the natives, large as they were. For instance, two beams of silver were found by Pizarro near Cuzco, twenty feet long, one foot wide, three inches thick; consequently containing ten cubic feet, weighing 9,000 lbs., and worth - - - - - - - - - - - 180,000

The ornaments of temples stolen by the Spaniards, amounted to 26,000 lbs. - - - - - - - - 520,000

All the Mexican silver was used in ornamenting temples, etc., not as coin or circulating medium.

Compare, now, this amount with the results obtained by civilized mining:

Amount of silver smelted at the Pasco works from 1784 to 1827—5,000,000 lbs. Troy, - - - - - - 100,000,000

Yearly yield of three mines for thirty years after 1827, $2,000,000 per year. - - - - - - - - 60,000,000

The mines of Great Potosi, from its discovery in 1545 until 1556, $10,000,000 per year, - - - - - - 110,000,000

The same mines, from that time till 1778, - - - 1,000,000,000

For the last ninety years, 1,000,000 per year, - - 90,000,000

The mines of Peru and Bolivia, from their discovery till 1845, - - - - - - - - - - - 2,500,000,000

The mines of Chili, worked by English companies from 1826 to 1853, - - - - - - - - - - 84,000,000

Mines of Mexico, according to Humboldt, from 1550 to 1700, $2,500,000 per year, - - - - - - - 375,000,000

During the 18th century, $23,000,000 per year, - 2,300,000,000

In the first half of the nineteenth century, $10,000,000 per year, - - - - - - - - - 500,000,000

During the last fifteen years, $25,000,000 per year, - 375,000,000

All these numbers make a grand total of - $8,030,700,000

It is not likely that the nations of Asia mined as much silver as this amount; the probabilties are that the total amount possessed by them befor the introduction of western silver did not exceed $1,000,000,000, which would swell the amount to $9,030,700,000; and making a further allowance for amounts not accounted for of some $300,000,000, the whole amount of silver in possession of man in this century would be less than $10,000,000,000; only one quarter of the amount which Pilnius states that Cyrus collected more than 2,000 years ago.

In closing this article, we cannot omit mentioning one fact which strikes us as a curiosity, that all this existing silver is inadequate to pay the debts of the governments of two or three great modern nations.

P. H. VAN DER WEYDE, M. D.

New York City, Jan. 25, 1868.

MINING AND METALLURGY IN MEXICO—IV.

A SKETCH OF THE SYSTEM OF WORKING MINES AND OF EXTRACTING THE PRECIOUS METALS FROM THEIR ORES, AS PRACTICED IN MEXICO.

By DAVID COGHLAN, Mining Engineer, Scranton, Pa.

Continued from Page 67.

The principal silver ores are the following:

1. Simple sulphuret (Plata Azul).

2. Red silver ore, or ruby silver (Petanque), the dark red being a sulphuret of silver and antimony, and the light red a sulphuret of silver and arsenic.

3. Chloride of silver, or hornsilver (Plata Ceniza).

4. Bromide of silver, called from its color "green silver" (Plata Verde), by the Mexicans.

5. Native silver.

6. Silver lead ores (argentiferous galenite, &c).

The sulphuret is the most abundant ore, and probably produces three-quarters of the total silver. It is of a blue color, whence its Spanish name (Plata Azul); and it has often puzzled me to see it described in mineralogical books as being of a steel-grey color. It is always treated by the "patio" process except when very rich, when it is smelted. When associated with a large quantity of blende, a previous calcination is required. Ruby silver, when in a sufficiently massive state to form lumps of the size of a chestnut, is always smelted; when disseminated through the gangue, it is treated by the patio process, though not at all adapted for that system; but concentration is almost impossible, through the great brittleness of this mineral. In some districts this ore is the prevailing one; more especially in SAMBRERETE, about forty leagues northwest of ZACATECAS, where the mines were excessively rich at the beginning of the century, but are now nearly abandoned. The mine of San Agustin is the only one in CATORCE that produces this ore; and this has yielded great quantities of it. It is common also in ZACATECAS and GUANAJUATO, and the now abandoned mines were celebrated for their great production of ruby silver. Hornsilver is found near the surface, and exclusively in the "Colorados." The only district in which these ores extend to a great depth is, as I have before observed, CATORCE, where they in some places reach a depth of 1500 feet. Indeed, the greater part of the silver of this district was produced from the chloride and bromide until within the last ten years. These are the two compounds of silver most easily treated by amalgamation; and they are invariably submitted to the "cazo" process. Hornsilver may be extracted with the greatest ease by the patio, but with greater cost of quicksilver and time than by the cazo. Chloride of silver is never found in a massive form, most generally occurring in the shape of a crust on the gangue or on other ores. It is ash-colored, whence the Spanish name "Plata Ceniza." The same remarks apply to the bromide, which is generally associated with it, and is treated by the same method of amalgamation These two varieties of silver ore are only found in the "Colorados," never extending into the "Negros," or dark-colored ores.

Native silver is found associated with all kinds of ores, though not in any great quantities, as a general rule. In some districts, however, such as BATOPILAS in CHIHUAHUA, it occurred in such masses that it could not be blasted, but had to be cut out with chisels, like the native copper of Lake Superior. The mine of San Agustin, in CATORCE, has also produced large quantities, though only in grains, or at largest, in lumps of the size of a man's fist. This is, as a general rule, not an important ore.

Silver-lead is common throughout the country, often associated with other ores, but generally forming veins of galenite, in which the silver is but a small proportion. No mines of this class in Mexico are very extensively worked, as the price of lead varies exceedingly at different times and different places. Thus very rich silver mines, producing large quantities of ore for smelting, will require large quantities of lead or litharge, and silver-lead mines in the neighborhood, before abandoned, will be resumed. The price of lead often rises to double its former value, under these circumstances. Besides these, I may mention a kind of ore which may be considered a separate class, as the system of preparation for amalgamation is entirely different, viz: ore in which the sulphuret or ruby silver (classes 1 and 2) are associated with blende, arsenic, and antimony, which have generally also a large quantity of "mundic" (iron and copper pyrites). These baser ores were until lately entirely neglected, owing to the difficulty of their treatment either by amalgamation or smelting. The attention of miners has, within the last fifteen years, been more directed to this class, and some important changes have been made in the system of treating them, to which I have devoted my particular attention. For the four years before my leaving Mexico, I managed the mining concern of J. B. JECKER & Co., in CATORCE, and maintained it exclusively by treating these ores, which had never been touched before, owing to the above mentioned difficulties. Had not the revolution which overthrew the Imperial government prevented the working of the mines, a permanently profitable treatment of them would have been continued.

The "patio" system is most employed, and by it the great bulk of the silver is produced. From ordinary ores about 90 per cent. of the silver is extracted; and for working great quantities of metal, in the circumstances of a country like Mexico, it is the best, though not so economical as the "cazo" system, to be described hereafter; but this last is applicable only to certain classes of ore. The sulphurets are almost always extracted by the patio. The ore being cleaned at the mine is carried to the metallurgic works, often at a distance of many miles, to secure the advantage of a warmer climate, greater command of water, and cheaper supply of fodder for the great number of mules and horses employed. There it is treated by one or other of three methods, according to the class of ore. These three systems are—1. Patio. 2. Cazo. 3. Smelting. The first two being by amalgamation. The Patio, being the most used, deserves the most minute description. The ore is stamped so that the largest grains are about the size of grains of wheat. The stamps are much like those used in this country, but the ore is pounded dry. Each stamp-head is composed of a mass of iron, weighing about one hundred-weight, and the wooden shaft weighs as much more, making about two hundred-weight. They fall through a distance of about three feet on a long solid copper block, about one foot square by six or eight feet long, which forms the foundation on which the battery of six or eight stamps work. When the ore is all reduced to the proper degree of fineness, it is transferred to the Arrastra or Tahona, which is a circular pit, about one foot below the level of the ground, and with sides formed of porphyry flags, rising one foot above the floor. The bottom is paved with large blocks of hard porphyry. On a pivot in the middle turns a vertical axis, having two cross-arms, to which are tied three or four large blocks of porphyry, each weighing from three to five hundred weight. These are turned round in the pit, by means of a lever for horse-power, attached to the central axis. The friction between the revolving blocks and the bottom soon produces a smooth surface, which grinds the ore thrown in from the stamps to the fineness of flour. Water is added during the process, which is kept going night and day, by means of one or two mules at a time, according to the size of the Arrastra. Some works keep as many as one hundred of those machines going constantly; and, however primitive they may appear, they answer their purpose. Indeed, I know of but one place where the ore is altogether ground by steam power (Fresnillo), where, instead of stamps, crushing rollers are used, and the fine grinding is done in "Arrastras"—but of an immense size, moved by the same power. When, after about eighteen hours' grinding, the pulp is sufficiently fine, it is emptied in a vast flagged court (patio), within a circular inclosure of stable dung or sand (the sides being about a foot high and the diameter of the circle about fifty feet) until a proper quantity, say thirty to forty tons, is inclosed. The solid substance soon settles down; the superabundant water runs off through the sand at the side, or is evaporated by the sun, and, after one day, the mass is ready for amalgamation. About five per cent. of common salt is added to the mud, and trampled in by horses, made to walk round, in the circular mass of of mud, which lies about one foot deep on the flags, and when so arranged, is called "torta." After a few hours, the salt is dissolved, and the mercury is added, by emptying it into a canvas cloth and squeezing it through like rain. It can thus be distributed pretty evenly over the surface of the mass of mud. Six times the weight of silver expected to be extracted is the proportion of quicksilver generally added; but only two-thirds of this is put in at first. The trampling with horses is then renewed until the quicksilver becomes intimately incorporated in the mass of mud. It is then smoothed down, and left until next day, when, a handful being washed in a bowl, so as to leave only the quicksilver and the heavier parts of the ore, the person in charge can tell, by the color of the surface of the mercury, and by pressing the globule with his thumb, to see the amount of amalgam formed, if the process is going on satisfactorily. There are two phases, which are equally to be avoided, and which are in a moment evident to a person of experience, on washing the sample, from the color of the mercury. They are called, rather fancifully, by the Mexicans, the hot and cold stages. In fact, neither heat nor cold is developed in the process, though cold weather has the rather curious effect, according to the Mexican nomenclature, of producing the hot state of amalgamation. These changes are in in fact chemical. In the hot phase the globule is ash-colored, and causes on rubbing it a white cloud in the surrounding water, which is calomel, formed by the undue action of the salt on the mercury; converting it into a substance, from which the metal cannot be recovered, but which is washed away, when the final separation of the amalgam from the ore is effected, and thus hopelessly lost. This stage is caused by the addition of too great a quantity of sulphate of copper, a most necessary corrective of the opposite state of "cold," applied at different periods of the amalgamation, when signs of the "cold" stage show themselves. When added in excess, the sulphate attacks the mercury, and the protochloride begins to be formed. The corrective for this is to cease the periodical tramplings, or should this not be sufficient, to add lime or ashes. Should the opposite phase of "cold" show itself, the remedy consists in the addition of a small quantity of sulphate of copper, or what is the same, roasted copper pyrites, and an extra amount of tramplings. When in this stage, the globule of mercury is, if but slightly affected, of a yellow color, but in a higher degree of "cold," it is covered with a black film; amalgamation ceases, and a dose of sulphate of copper is required. The proper color of the quicksilver is its natural one, when it is said to be neither "hot" nor "cold;" but in ores which contain a large amount of pyrites a stage inclining to "heat" must be kept up,—which causes a loss of quicksilver, but which is necessary to counteract the "cooling" effects of the pyrites. I have used these terms of "heat" and "cold," not because they are correct, but for convenience sake.

Mining Summary.

GOLD AND SILVER.

Nevada.

Humboldt.—The report of the Surveyor and Assessor of Humboldt county for 1867 contains the following:—This valley, at the point where it makes the turn, is about forty or fifty yards in breadth between the foothills; below the point it widens out to a hundred yards; in places above, it gradually narrows until it terminates. Standing at the point on the hills before indicated and looking into the basin, one stands as on the upper tier of an amphitheatre, of which only three fourths of the circle is complete, namely, the portion on the left hand, sloping off to the plane on the south, and on the right hand continued on around to the head of that portion of the little valley spoken of, which turns up to the west. Directly in front and across the little valley, the ground is depressed, sloping to the south in a series of parallel rounded ridges, running north and south, with little ravines between. Now, immediately in front of the observer, in the hill on which he stands, and within twenty yards of the bottom, lies the celebrated Montazuma; a little to the right and north of this and the same distance from the bottom, lies the Jersey. Directly west and parallel with the Jersey, and on the same level, comes the Dunderberg, and then the Ne Plus. In the second tier, and higher on the hill, half way to the summit, a little to the right of the observer, is the Tontine series. Farther around to the right and just above the Jersey, but on the same level as the Tontine, is the Eagle. In the third tier, namely, on a level with the summit on which the observer stands, and about a quarter of a mile to the right, is the Chloride, and following right along around the circle, on the same level, about two miles distant, is the Guatimozin. Now, coming back to the starting point, and looking down across Montazuma, due west to the first little ridge across the valley, right at the base of that ridge, is the Savannah, and just a little above it, the Bald Hornet. Down to the left and south in this ridge is the Fairview. Coming back now to the starting point, and looking over this last ridge to the next one beyond and parallel with it in a line due west, right across the Savannah and Bald Hornet, the Dasey is seen on the summit of the north end; on the south end of the same little ridge, a few hundred yards distant, is the Oxide. On the summit of the third ridge and at the south end of it is the Sultana series. The Montazuma is the leading mine. Lies as before described; extent, two thousand feet; strike northeast and southwest; dips northwest at an angle of 45 degrees; lies in porphyry, with well-marked casings; width, twelve feet. The most remarkable feature of the mine is, that the whole of the vein, from wall to wall, is pure ore, without a trace of gangue. The ore consists of an oxide of lead and an oxide of antimony as the leading minerals. These carry the silver and yield an average of $100 per ton by actual workings. Much of the ore goes $300 per ton. Carbonate of lead is found in small quantities. The mine has been fully developed by shafts and tunnels, and at least ten thousand tons of ore are now exposed in the galleries of the mine, from which it is taken just as fast as the company is able to reduce it. The ore is reduced by smelting, and yields fifty per cent. of its weight in metal, in the form of an alloy of lead, silver and antimony, i. e., a ton of ore gives a thousand pounds of metal. The ore is reduced at the smelting works of the Trinity & Sacramento Co., at Oreana, three and a half miles south of the mine. These works have been erected during the past year, and are of a character and capacity as yet unmatched in this State. There are eight furnaces—two for smelting, four for calcining, and two for cupelling. The present run is fifteen tons per day, from one smelting furnace. The first process is smelting. The ore is broken to the size of

heus' eggs, then placed on large floors or pavement near the feeding doors of the smelting furnace, in beds of about ten tons each; on the ore so laid the fluxes are then spread, which are changed from time to time to correspond with the character of the ore and condition of the furnace. This furnace is a cupola twelve feet high, between the base and feeding door, and twenty-eight inches inner diameter, with a high chimney for a draft. Charcoal is the fuel used, and the fluxes are few and simple. Six men, divided into shifts of twelve hours each, feed fifteen tons of ore through one of these furnaces in twenty-fours, exclusive of the fluxes and fuel which they also handle. From the smelting furnaces the metal—consisting now of lead, silver and antimony—is passed into the calcining department, where the antimony is separated from the lead and silver in large reverberatory furnaces, of which there are four, each of a capacity to receive thirteen tons of metal at a charge, and to work off from twenty-five to thirty tons at a heat; for, after the first batch of metal begins to loose its animony, the charge is kept up until the calcining pan is found to be filled with only pure lead and silver. When this stage is reached, the metal is run off and sent to the refinery department. Here the lead is separated from the silver by cupellation in furnaces built after the ordinary English plan, with movable tests. There are two cupelling furnaces, each of a capacity to reduce from 2 to 3 tons per day of the metal received from the calcining furnace. Two shifts per twenty-four hours, of one man each operate one of these furnaces. The charcoal is brought from the first east range of Humboldt Mountains, a distance of twenty-five miles, and is an important feature in the works. One hundred thousand bushels will have been delivered at the works during the present year. The quantity required per ton of ore is fifteen bushels, and costs per bushel. Sage brush is used for the reverberatory furnaces. The bone ash for cupelling is obtained from bones of cattle, gathered on the desert along the emigrant road, by Indians, and pulverized in an ordinary stamp battery. The litharge resulting from cupellation is all economized, being the very thing needed for flux and is thus returned and run through the furnace over and over again, serving all the purposes of a flux, and also affording an opportunity, without any extra cost, of extracting every particle of silver the rock contains. The excellent skill in management and rare energy and patience of the superintendent of this company, Mr. A. W. Nason, combined with his unalterable faith in the success of this exterprise, have been of incalculable benefit to Humboldt County in presenting to the world so indisputable a proof of the great mineral wealth of this region. Here is one company just starting operations, smelting forty-five thousand dollars per month, with sufficient ore exposed by present workings to continue at the same rate for two years to come.

Colorado.

We condense as follows, from files of the Central City *Herald* to January 27: At Upper Empire, Haskins and Disbrow are running the Peck mill on surface ore from the Gold Dirt lode, and are making it pay. They have a five-foot crevice, which is easily taken out. It is only a short distance to the mill, and the ore is handled on a sled. A gentleman by the name of Fuller is putting up a new patent amalgamator in the Peck mill, which he says he has worked successfully in North Carolina. It receives the ore through a pipe at the bottom, when it is forced up by hydraulic pressure, through the quicksilver, and discharged through another pipe at the top. In the meantime the ore and quicksilver are thoroughly mixed by means of a rod passing down through the centre, on the end of which there is a copper funnel-shaped concern, full of holes, through which the ore is made to pass. The rod is turned by a belt. The idea is to force the ore through a large quantity of quicksilver, by hydraulic pressure. A practical test will be made in a day or so. Mr. Fuller intends putting up one of his amalgamators in Gilpin county as soon as this one is fixed. Andrew Mason is running the Tennessee mill on ore from the Silver Mountain lode. This lode was worked out, as was supposed, several years ago—that is, the richest and best was taken out. The parties now working the mine are taking what was left. Six men can take out ore sufficient to run twenty-four stamps. The lode has an immense crevice, being fifteen feet wide in some places. It is now between ninety and a hundred dollars per cord. It is not paying so well now as it has during the past summer. Andrew Mason has been running the Tennessee mill on this ore for over a year now, and there is a good prospect for its holding out some time yet. It takes twelve men besides himself to run the "outfit"—six miners, four mill men and two men to get wood. Between ten and fifteen cords is the average amount of ore crushed in a week. We were fortunate in arriving at the mill just as he was 'sugaring off' a chunk of retort about the size of your head. The retort from this district is clean and bright, always commanding the highest price in market ..... A button of gold and silver, weighing three and a half ounces was recently taken from two hundred pounds of ore from the Golconda lode. Ore from this lode has yielded $160 dollars in coin, in a common Spanish arastra. The lode is situated in Spring or Golconda Gulch .....The Black Company shipped 102 ounces last week, and have since been running on the remainder of the ore which had been taken out, and which it was designed to crush. Mr. Congdon calculates that there is just enough left to carry them up to to-night. Mr. Conlee then runs the entire mill, on ore from his property in Nevada. The Black Hawk Company have out besides, between thirteen and fifteen cords of selected ore, which Professor Hill has offered a high figure for .....Peter Fleming & C., discoverers and owners of the "Irish Flag lode," Nevada, have sunk a shaft on their property to a depth of fifty feet. They have run a drift on the West, intersecting the "American Flag," and are now drifting east. The crevice is four feet wide.....Mr. H. A. Haskins was in town yesterday, and brought in a first-rate looking retort from the gold dirt lode, which he is at present engaged in working, making fair average returns.....The *Register* of January 28th says: The Ophir Company ran twenty-five stamps last week, in the Briggs mill, and cleaned up 62½ ounces. This week they are running thirty-five stamps. Also preparing to run twelve in the Ophir mill, believing they can procure sufficient water for that purpose. The want of water is keeping nearly all the stamps of Nevada idle this winter. But for that our shipments of gold would be nearly double what they are. It is said that there never was more legitimate mining being done in this county than right now, and at that but a very small proportion of our improved mines is being worked. How would an artesian well do for Nevada?.....Mr. C. C. Marble, at present in charge of the Kershow Mining Company, is going to sort the ore mined on the Bench lode, and sell it to some of the custom reduction works. The Company are not at work just now.....The Georgetown *Miner* of January 23d has the following items: An essay made recently by Dr. Munson at the Denver Mint of ore from the New Philadelphia lode gave a return of $381 72 silver per ton. The New Philadelphia is situated on Douglas Mountain, about two or two and a half miles below Georgetown. The shaft on the lode was about thirty feet deep at the time of our last visit. The ore bears a striking resemblance to the ore from the celebrated Terrible lode, carrying a little less zinc blende and more galena than the latter. The gangue of the two veins is precisely alike, and since the Terrible, at a depth less than fifty feet, has reached ores that assay as high as six thousand dollars per ton, we think the owners of the New Philadelphia ought to feel encouraged in developing a mine that seems so similar in its character. The New Philadelphia lode is the property of the Douglas Mining Co., who also have several other very promising veins in the same vicinity. One great advantage possessed by the company we have named is the ease of access to their mines. A slide from one to two hundred feet in length will carry the ore from either of their shafts to the level plain below .....Vigorous operations still continue on the Baker mine, at West Argentine. Work in the adits is being pushed night and day, and a large amount of ore is being brought to the surface. As soon as practicable we intend to visit this mine, and will give our readers the benefit of it.....We understand that work on the Georgetown tunnel has been resumed. This property has passed into the hands of Robert Guittens and others, and they propose driving it as fast as passible. It will prove of immense benefit in striking at a great depth the rich mines of Columbia mountain. We would like to see a dozen such enterprises in operation here, as our precipitous mountain sides offer superior inducements for works of this character. The ease in handling ores and draining mines which this mode offers should induce men of capital to invest in such enterprises The new lode we noticed last week, discovered by Richard Simmons near the foot of Sherman mountain, is proving itself one of the best here, not only in the width of crevice and ore vein, but also in the rich quality of the ore produced. He has named it the London lode.....John C. Egan is now opening, on Alpine mountain, the Susan Egan lode, discovered last fall by Phil. Sheridan. The lode is now about seven feet between walls, and gives every indication of being A, No. 1.

Nova Scotia.

From Mr. Heatherington's *Mining Gazette* for January we copy the following information respecting some of the principal Nova Scotian mines: SHERBROOKE, through the operations of the Palmerston, Hayden and Derby, Dominion, and New York and Sherbrooke companies, continues to sustain its productive character. The yield for December was 1.004 oz 10 dwts. 8 grs. from 962 tons 5 cwt. of quarts. Total number of days work 3.744 .... RENFREW is still producing well, and the reports from the Ophir, the Hartford, and other companies continue favorable. .....Waverly is recovering favor; the DeWolf, Burkner, and Boston and Nova Scotia mines, however, are its present only support .....WINE HARBOR.—Operations were suspended this year, while negotiations for the transfer of property were going on, nearly the whole district being controlled by one firm of capitalists. Now, however, that several good companies have formed, work will be resumed with vigor, and the district soon recover its old prestige with surprising *elan*.....OLDHAM.—Works suspended, owing to litigation. The Doull claims alone are under actual development, and doing well.....ISAAC'S AND COUNTRY HARBORS.—No reports received.....TANGIER.—The Strawberry Hill claims still working. Average returns not given.....OLD TANGIER.—The Adams (Beneficiary Company) mine showing well. Sixty ounces last month from fort-five tons of ore. This without the rich samples recently shown in Halifax. ...MONTAGUE.—No returns.....UNIACKE.—The Hall, Doull, McQuartie, Uniacke, Montreal Co.'s, and West Lake mines are still yielding good ore. Seventeen tons from the Hall lode gave 21 grs. 8 dwts.; the Doull and McQuarrie lode steadily averages over an ounce, which is not so bad for a three feet vein. Since the arrest of the pedlars and dismissal of suspected hands, the Hall and McIntosh (Uniacke Co.) mines have been yielding from half an ounce to an ounce per ton more than before .....LAWRENCETOWN.—A property from this district is to be placed in the English market. Reports from the same are favorable. We have seen a brick of six ounces, less one pennyweight, the result of crushing three tons of average ore. The Werner and Strange mines are yielding some promising rock. The mill belonging to the former will soon be in operation.....OVENS.—An American company has purchased the Macdonald property and commenced work. The crusher and other machinery will arrive shortly. Offers have been made for the McCulloch claims, which are likely to go off well ....GOLD RIVER.—Works temporarily stopped, though considered quite productive. Alluvial deposits reported on the claims of the Chester Company .....The OPHIR mine at Renfrew is a representative institution, both as regards management and success. The value of the gold mined between February, 1866, and September, 1867, amounted to over one hundred and eighty thousand dollars, and after paying current expenses, and for the erection of a new 24 stamp mill, as well as for several additional areas, gave in the above space of time a net profit of one hundred thousand dollars.....The PALMERSTON mine at Sherbrooke, which is also an American enterprise, is hardly less successful, having made a dividend of 25 per cent. from its first year's earnings after having paid all expenses, and purchased a new 10 stamp mill. The net revenue from the mine in United States currency stands as follows:

Receipts from 10th November, 1865, to 28th October, 1867		$85,515 59
Expenses at the mine	$35,166 61	
Cost of mill	7,287 50	
		$42,454 11
Net profit		$43,061 48
Dividend 25 per cent		25,000.00
Balance		$18,061 48

The returns for last quarter of the District Commissioners have not been received at the Mines Department Office, but the ascertained gold yield of the Province up to the end of September, 1867, amounted to 118,435 ozs., representing, in round numbers, a value of nearly two and a half million dollars, the actual yearly portion being as follows:

1860—61	(18 months)	6,000	ozs.
1862	12 "	7,275	"
1863	12 "	14.001¾	"
1864	12 "	20,023	"
1865	12 "	25,454¼	"
1866	12 "	25,204½	"
1867	9 "	20,567½	"
		118,435	"
Allow for gold stolen and not reported, at least		11 565	"
Total		130,000	"

California.

SAN FRANCISCO, Jan. 12, 1868.

EDITOR AMERICAN JOURNAL OF MINING:

Your valuable JOURNAL OF MINING finds its way regularly on this side, and is highly appreciated. Having partaken somewhat of the stagnant feeling respecting mining, I have neglected dropping a line as often as I have even desired to. When I say stagnant feeling, I refer more particularly to "city mining"—the dealing in stock and superficial mining(?) The miners, in the strict sense of the word, as a whole, have done well the past year, viz., by the reduction of expenses and increased yield per ton through more thorough working than by any particular improvement in machinery. The recent rains and floods have carried off some mills, and as yet we cannot ascertain how many. The waters of the Merced, Tulumne, Stanislaus and Kern rivers have been particularly high. Mining here is assuming gradually a distinct business, as it should for the interest of all. Heretofore, stock speculators have formed one class of miners, but they are now looked upon as a separate body. With you, as with us, no doubt, the Comstock is watched with the greatest interest. This wonderful productive lead still goes on. That the Comstock does not look as well as formerly is no doubt correct, but that it has "gone in" is all humbug. It has nevertheless cut up a good many mineralogical freaks, until it has upset every scientific and practical theory. I have come to the conclusion that the least one pretends to know where it is or is not, beyond pastime exploration, the better off he is. So the bullion keeps coming out, it matters little which way it goes; it certainly is not now where it was five years ago, and where it will be next year, can better be told then than now. The lower level shows a break, and until it is found at the lowest levels, stocks will pop up and down, agreeable to the hopes and fears of holders. The only real feasible, sensible objection somehow, seems to lag—that is, the Sutro Tunnel—a small operation, when compared with mining in Europe. Between the proposed mouth of the tunnel and the present location of the Comstock, are at least half a dozen good mineral bearing leads of considerable proportions, which, in my humble opinion, will in time be found highly productive, independent of the Comstock. One trouble in mining enterprises here, is the way in which some cases are managed. It is "hurrah, boys" to-day, "big dividends and plenty of them," and up goes stocks and then the first thing you know there is an assessment, and the bottom drops out, instead of holding a reserve fund, and by making less dividends prepare against unusual draws by accidents, &c. The Imperial Company, in this respect, is a model institution. In California mining there is considerable stability. The gold districts are becoming more important daily, in consequence of the success of the chlorine process in several important districts. The silver districts of California—that is, Hot Spring, Kearsarge, and Cerro Cordo—are coming into considerable favor, and this summer will be fully developed. Mining, from this time on, is going to greatly advance, for several reasons; one is, money is too plenty for the present facilities of getting it out on fair interest, outside of mining. Again, practice has made us pretty perfect miners; and again, there is a disposition to work the same rock with more care. I now and then hear of Eastern capital going into some of our mines. I think they exhibit considerable confidence, from the way they have pocketed losses. The fact is, mining to day is the best business in California, if managed with skill, experience, and economy. This idea of "who cares for expenses," because you are working in gold and silver, will burst any company. Mining property is now being rated at a more reasonable figure.

A. B. PAUL.

New Mexico.

A correspondent of the Denver *News*, thus replies to a letter recently published in that paper which seemed to imply that the large prospects of gold reported to exist in the newly discovered Cincarron mines were humbugs. He says: The writer has not seen more than fifteen cents to the pan. Certainly his observations have been very limited, for in many cases as high as one dollar and twenty-five cents to the pan has been seen by others equally as reliable. Mr. Robinson, well known in this Territory, with four others, took out, from a space not much larger than ten square yards, up to Nov. 20, 1867, $55,000. Willow gulch, at the head of which this prospect was taken out, is five miles long, and has been well supplied with water from Willow creek, which has never yet failed. On this gulch there are seventeen companies who have opened their claims. The Idaho company found the bed-rock at eight feet, and the dirt paid thirty-five cents to the pan. The Union company took out one dollar to to the pan. Auther & Co., have a claim sixteen feet down to bed-rock, where the pay dirt is eight feet thick, and which yielded one dollar and seventy-five cents to the pan. Col. Henderson opened another claim eight feet down to bed-rock, and got twenty-five cents to the pan. At Beniles Willow, there are seven other rich gulches already discovered, which prospect well, but in some of which the water is "scarce," soon to be supplied from a ditch now being constructed twenty-two miles long, from Red River, and which is to be completed by July 1, ensuing. Thos. Pollock has discovered a new gulch near Spaniel Bar, which prospects twenty-five cents to the pan on the surface. The extent of the discoveries are over 25 miles. General Hooper, of Colorado City, is now in these mines, and states that there are one thousand miners there, and all appear satisfied with be prospects. Instead of but "one lode" of gold or silver discovered, there has been over one hundred already found, which prospect free gold, free from sulphurets. One belonging to Paige & Co., has been sunk twenty feet, and the crevice shows five feet. The gold is easily seen with the naked eye, and prospects fifty cents to the pound of rock. Five miles from Willow gulch, a large hill has been discovered, which appears to be all quartz. Three lodes which prospect well for silver, have been found. One copper lode shows two feet crevice on surface, and yields forty-one per cent. of copper. A tunnel, to strike it two hundred feet down, is now nearly finished, having been constantly worked for the last two years. Your Mr. Byers brought some specimens with him on his late return from Santa Fe. As to there being but one town, Elizabeth, it is true a few huts were erected last season at this point. But as it is on Mr. Maxwell's land, as well as all the discovered mines, no title has or will be given to the lots, and the houses will soon be removed. Virginia City is laid off near by, in the midst of the mines, to which alone Mr. Maxwell has given title, and which is destined to be the "Denver" of that rich locality.

Montana.

The prospects for a vigorous and extensive developement of the various quartz interests of this Territory next summer, is every day becoming more and more apparent. The Helena *Post* says: Aside from the work now being done throughout the Territory on quartz ledges, many companies have already been formed in the East, and many more will undoubtedly be before spring. We understand that Col. Henry Allen has formed three large companies, to operate in the Ten Mile district—one in St. Louis, one in Boston and one in New York—all of which will bring out machinery and ample means to prosecute their labors. In addition to these, Prof. Swallow designs bringing out three mills and and a smelter; one of the mills to be put up in Highland, the second in Ten Miles, and the third mill, together with the smelter, is to be located at Butte City. Notwithstanding the fact that considerable distrust in our quartz has been manifested by capitalists east, owing to speculation in wild cat property, it is a matter of congratulation that those having good property find no difficulty in inducing the investment of capital for the purpose of development. The coming year will no doubt prove Montana to be what her citizens claims she is, the richest in precious metals of either of the sister States or Territories.....The same paper (Jan. 11th) has the following item: On Monday morning last, between six and seven o'clock the mill building of Messrs. Scrannage & Parrot, situated in Grizzly gulch, caught fire accidently and burned down. The fire was first seen to come from a room in the upper story of the building, situated near the smoke stack, which was used by the employees as a sleeping apartment. The building is a total loss, but we understand that the machinery is uninjured. The loss will be severely felt by the owners, at this time, as they have but just succeeded in getting their machinery in good working order after a hard summer's work. We believe they contemplate re-building immediately.....The Philadelphia Co.'s mill the driving shaft of which broke some time ago, will be ready to resume operations shortly, probably by the latter part of this week.

Alaska.

A correspondent of the Boston *Journal* writes: The part of Alaska where gold is positively known to be found in paying quantities, is on the bars of the Stikeen—the second largest river of the territory—having its rise in British America, and flowing west into the Pacific through Southern Alaska. It is a bold, rapid stream, forcing its way through the Cascade range, where it is overhung by startling precipices and terrific glaciers. For nearly a century the trappers of the Hudson Bay Company have caught beavers and sable upon its head waters. Some of these restless adventurers drifted down to Cariboo upon the discovery of the rich diggings there in 1858. Returning to the Stikeen in 1862, they found its bars contained gold, and in the fall of that year over fifty ounces of dust were brought down to Victoria by a French trapper named Croquette. Early in the spring fifty-seven prospectors sailed from Victoria, and ascended the river in canoes. The first reports were highly favorable. One of the successful miners reached Victoria in August, with $1,967 in gold dust—enough to stimulate a stampede to the new Northern diggings. Three hundred reached the mouth of the Stikeen just as the sharp frosts of September had set in. Here they met a majority of the earlier adventurers returning to Vancouver, disheartened and penniless. The rich placers had been exhausted in a few weeks, and, aside from wild game, there was an utter destitution of provisions. One hundred of the more sanguine, having a winter's stock of "grub," pushed their way up the river in canoes, 170 miles. The cold season was upon them by the time they had built cabins and founded the little settlement known as Shakesville. Luckily the natives were friendly and intelligent enough to advise them to provide dilligently against the severity of the winter. For a time the winter was favorable, but after New Year the snow began to come heavily—eleven feet falling in a single storm. By the 25th of that month the ground was covered to the depth of twenty-three feet. Paths under the snow were made from one cabin to another. The weather became intensely cold. The mercury sank into the bulb of the thermometer, and congealed when taken up in a teaspoon. Whiskey bottles burst and alcohol became as ropy as molasses. The snow did not disappear till late in May.

Oregon.

The Humboldt *Register*, of the 21st ult., is informed by a gentlemen just in from the vicinity of Camp McGarry, that there is a great deal of excitement existing at all the military posts in Southern Oregon on the subject of rich gold discoveries said to have been made on the Malhuer river, about 100 miles to the northward of the line between Nevada and Oregon. The excitement at the military post is said to be so great that the officers find it very difficult to prevent their men from going off *en masse*. The Malhuer river rises in the Blue range of mountains, and flows southward, emptying into Malhuer lake, where it sinks and is lost, as are most of the streams that flow in the Great Basin. Malhuer lake is about midway between Camp C. F. Smith, just over the Nevada line, and Canon City, in Oregon, where valuable gold diggings have been worked for several years past.

Siberia.

A telegram from St. Petersburg, dated the 7th inst., states that reports have been received in that city from Siberia of the discovery of rich and extensive gold deposits on the Amoor river. The natives were flocking to the gold region by thousands. So great was the excitement that troops had been sent by the Governor of the District to preserve order and guard the mines; and desperate and bloody conflicts had taken place between the natives and the soldiers.

COPPER.

Michigan.

In reviewing the copper trade of Michigan the Detroit *Post* says: Notwithstanding the depression which has borne so heavily upon the copper interest throughout the entire year, it will be seen that some very hopeful features are presented, especially the handsome addition to the capital invested. There is reason to believe that this great interest has passed the most trying ordeal. It must be borne in mind that while the market price of copper has doubtless touched its *lowest point*, the cost of producing it has touched its *highest*. There is therefore much to hope for, and, when the clouds of depression and gloom are chased away by the sunburst of prosperity, those who have freely invested their means in developing the resources of the country will only reap the rich harvest that their indomitable perseverance and unfaltering courage so well deserve.

PRODUCT OF THE COPPER REGION.

Product of the copper mines for 1867, tons..	7,900
Product of do. for 1866.....	8,000
Decrease.....	100
Value of product for 1867.....	$3,876,000
Value of do. for 1866.....	4,800,000
Decrease	$924,000

The Houghton *Gazette* of January 23 says of the Hancock mine: The complete changes in the character of the vein rock, and the occurrence of the deposits, are great and frequent, leaving but little chance for prognostications of the future of the mine. The supposition would be, however, that there will be no very regular courses of rich ground, but more of shifting bunches, making wide and exceedingly rich for a season, and then pinching or changing to another point some distance removed. Shurtleff shaft is fairly started off from the fourth to the fifth level, and the deepest point in the mine. The fourth level is opened two hundred feet south and twenty-five feet north from this shaft. Another month's driving of the latter will connect it with the drift south from a winze down from the 30, and 140 feet north from the shaft. This winze passed through a very rich vein on the way down, and most of the drifting from the bottom was also in good ground. Immediately over this winze, in the backs of the 20 and 30 was the rich bunch of ground which opened out in the 20, as a rich, copper bearing conglomerate, and afterward cut out into more consistent vein matter. In both characters of rocks there has been an abundance of copper, making it of more practical interest than the phenomena. The prospect for a series of rich stopes in the back of the 40, as soon as connections are made, are certain and good. Some of the shaft, in the 40 back, three trial stopes have been started; the first, at fifty feet, about, is more for examination of the vein, which has been poor though carrying a little stamp copper. The second stope, on the south side of a winze from the 30, and 114 feet from the shaft, is yielding coarse stamp and some barrel work, the most of it being taken out of the footwall rock, about ten feet of which pays well for stoping away. Passing a small pillar of ground left to support the hanging wall—which has a strong propensity for shelling off—the third of the trial stopes is met, and the same appearance as the second noted. It will be remembered by some, though we suppose they are few in number, that in driving the deep adit, a wide soft vein was crossed, which we have spoken of as belonging to the latter fissures which had been filled with the pulverized debris of the rock surfaces undergoing denudation, and which we have classed as "mud veins." The end of the 40 is now in this vein, which, although very soft and fragmentary in its composition, is very much harder than when first injected near the surface. The course of this vein is nearly east and west, and its inclination to the southward. Near the hanging wall the end of the 40 drift has come to harder rock containing coarse copper. The courses of this and the main vein have been somewhat deflected from the true line, that of the latter being turned somewhat to the westward, so that the hanging wall fractures of the former form oblique heads in the main vein. In driving the 30 south through this mud vein the same changes of course were observed, but after getting through it the main vein became "lost" or indefinite. A pretty well defined slip, branching off to the westward, having been noticed a few feet back, a small cross-cut was started in to ascertain if it might not be the hanging wall of the main vein. Upon getting in twelve feet, a fracture, or "head," technically speaking, dipping into the vein at a steep angle, was encountered, and against it a small round mass of copper was found. In removing it several smaller boulders of copper were found around and under it, and so on; as fast as those in sight were got out new ones were found. When we were there the pit was down about eight feet, and a piece weighing about eighty pounds was being lifted out. The copper from this singular bunch occurs in partially rounded and smoothed forms, fixed in a loose cement of soft clayed amygdaloid and calcareous spar, easily worked over with a pick and gad. But little or no powder has been used here. What this singular bunch will amount to, is of course, unknown; this being the most southerly opening in the mine. The forty drift will soon be in the line of this ground, when it will be seen if the course or bunch continues down from the point of discovery. It is quite probable it will, and that one or more rich stopes will be had here. From certain little indications in the ends of the drifts, the captains are hoping for some rich ground south of the mud vein, in the more regular ground known to exist there. The back of the third level is pretty well stoped away, as are also those above. A party are getting some fair stamp rock from a small bunch about midway between the main and the old vein, lying north. The 20 has been driven along on a connecting branch from the main to the old vein, and along it to under the line of Dupee shaft, but the exhibit of mineral has been indifferent. Another drift has followed a wall having the direction of the main hanging wall, but not much of interest was found beyond the point where the 20 divides into the two branch drifts. There is much more coarse copper in the Hancock vein than would be suspected from a single examination of the openings. From five to fifteen tons of barrel and small mass work is obtained each month, mainly in the form of flat, smooth sheets of from twenty to fifty pounds weight. The broken nature of ground makes a large amount of timbering necessary to keep the hanging ground from falling away and filling the openings. The amount of timber used monthly is large, much more than is used in mines three times the size. In one stope we saw five sets of stulls, the greatest we have seen anywhere. The stamp mill has been operating very well for the season, until last week, when a stop of six days was occasioned by the breaking of the working crank of the stamp shaft. The crank has been mended and commenced work again on Monday last. Number of heads in operation, forty; amount of rock stamped per day, about one hundred tons. Wood consumed, about sixteen cords, or six tons to the cord. From the east we learn that the Hancock has probably produced sufficient copper during the year past to pay expenses. If such proves to be the fact, the Hancock has done much better than many of its more pretentious rivals ....Of the South Pewabic Mine, the same paper remarks: It is being opened by two main working shafts, Nos. 2 and 3. No. 1 was sunk to the first level and discontinued, "a grass winze," about midway between Nos. 2 and 3 shafts, has been sunk to the second level and stopped. No. 2 is down twenty feet below the fourth level, and No. 3, thirty feet under the 20. A winze about one hundred feet north of No. 2 is the deepest point in the mine, being with less than ten feet of the fifth level line. The first level is opened seven hundred and thirteen feet, or from north close to the Adams line to a few feet beyond the "grass winze," when the gradual sloping away of the ground to the southward, rendered it inexpedient to drive it farther. The second level is opened eight hundred and ninety feet; the third, five hundred feet; the fourth, three hundred feet; making a total of two thousand, four hundred feet. The length of the lode opened and proved by the first and second levels is one thousand seventy feet, and in all that length not one foot of its full width can be even intimated as poor ground. The distances from level to level is seventy feet, and the average width of the lode (so far as ascertained) twelve feet, making nine thousand, three hundred and thirty-three cubic fathoms of twenty tons each; or, allowing an average daily consumption of three hundred tons, enough to keep the stamps busy six hundred and twenty-two days, and leaving but four days for repairs in two years. We have merely carried out the figures to show that the mine is in condition to keep the mill supplied with all the rock it can treat, even if it should require four hundred tons daily .....At the Pewabic, matters have assumed a more favorable aspect, about one hundred and fifty men have been set at work, and others will probably be added as occasion may required. A few discontented ones still grumble at their wages, but the majority have sensibly concluded that even small pay is better than none .. Mr. Thomas, the agent of the Allouez, states that he will soon commence the sinking of two shafts on this property, and probably do other explorative work.....The present work at the Seneca will be discontinued on the first of February.

MISCELLANEOUS.

Pennsylvania.

We make the following extracts from the recent report of Messrs. Adelberg & Raymond, on the property of the Lancaster Chrome Mining and Manufacturing Company: "Fifty-seven miles from Philadelphia, on the Philadelphia and Baltimore Central railroad, is the village called Rising Star, the present terminus of that road in Cecil county, Maryland. About three miles northwest of this village is the township of Little Britain, in the southwest corner of Lancaster county, Pennsylvania—the celebrated locality from which has hitherto been taken the greatest part of Chromic Ore for the manufacture and trade of all the world in Bichromate of Potassa. This locality is popularly known as Texas. Two centres of activity have been developed in this region. The first and oldest is formed by the Woods Mine and Dressing Works, belonging to Isaac Tyson, Jr., of Baltimore. The second is the seat of the new enterprise of the Lancaster Chrome Mining and Manufacturing Company, of New York, in the immediate neighborhood of the former. We have the honor to submit the following report upon the latter property, of which we have made a personal examination. The property of the Lancaster Chrome Mining and Manufacturing Company consists of the lease of the mineral rights of forty acres of land, the owner of which is Abner Carter, resident upon the estate. The terms and bearing of the said lease are, as matters beyond our personal or professional examination, irrevelant to this report; it is enough to say that they cover all the privileges which any mining company can utilize.

GENERAL GEOLOGY.

The valuable mineral of this property is Chromic Ore, popularly called Chromate of Iron. Since this occurs in the serpentine belt of Lancaster, it is necessary for the comprehension of its conditions to form correct notions of the geological relations of that variety of rock formation. Geologically speaking, the serpentine stand closely related to the euphotide and diallage rocks. They occur in irregular masses, without traces of stratification, as ridges or domes, in the neighborhood of which the sedimentary strata are altered, tilted and broken. The inner mass generally presents an aggregation of ellipsoidal, renoidal or irregularly rounded fragments, which often show upon their surfaces traces of attrition. Sometimes these fragments are exceedingly small, and the fissures which traverse the rock extremely numerous. The geological epoch to which the serpentines belong is in most cases not to be determined on account of the disturbed or incomplete stratigraphical evidence of the enclosing rocks. They are generally attributed to the older geological periods. All serpentines are distinguished by an abundance of the most various mineral segregations. In some parts of the world these segregations consists of Picrolite and Schillar-spar; elsewhere, Chlorite, or quartz. The serpentine of Lancaster county presents Magnesite, and especially Chromic Iron Ore in large and small veins and nests of various size, sometimes expanding to masses of great dimensions.

SPECIAL GEOLOGY.

The rock of this property is true serpentine, and belongs as such in the hydrus-magnesian series of metamorphic rocks. It is massive, without cleavage or granular structure, and so soft as to be easily scratched with a knife. In color it is dark gray to grayish green, soapy to the touch; and consists of Silica, Magnesia and water. The country rock of the Chrome Ore deposits is all of this lithological character; beyond the limits of the ore-bearing belt, however, it is interchanged with stratified rocks, containing ferruginous, felspathic and steatitic layers. The longer axis of the Chrome Ore, included in this serpentine zone, stretches from S.W. to N.E.; a fact which must be constantly kept in mind for the understanding of the directions given in the sequel. The arrangement of the serpentine masses, whether the pure serpentine, or that which is interchanged with other layers, is in the highest degree irregular, and diversified by the frequent fissures above mentioned. These are full of segregations and concretions. Fine seams of Magnesite, Brucite, and other magnesian minerals penetrate both the masses and layers in all directions. These parting seams have no general trend; they dip and strike in the most contorted lines, in curves and under all angles. The superficial observer, unaccustomed to behold, or unable to understand, the wonderful effects of metamorphic action, might well fancy the whole section to be the result of a pell-mell accumulation of various remnants. The various outcropping rocks, some easily disintegrated by the atmosphere, and others resisting its action, give rise to a surface configuration, alternating between sharply marked hills and valleys; while the water-courses, following the irregularities of geological structure, meander in fanciful lines whenever they have found their channels ready made, or could most easily carve them out. The nature of the magnesian rocks is such that they crumble easily under exposure to the air, but resist with great tenacity the last decomposition into their constituent elements. The soil, therefore, is no less unfavorable to agricultural pursuits than the topographical features of the surface. It has not that stimulus and capacity for rapid assimilation which form important elements of what we call fertility; only the economical and slow-growing forest trees can fully utilize its elements. Consequently oak woods of fine growth, but considerably thinned by the hands of man, are a prevailing feature of the landscape. But Nature, with her usual justice, has given to this region, for its deficiencies in one direction, rich compensation in another. The fact that these serpentine rocks are the matrix of Chromaic Iron Ore, has not only imparted to the district a world-wide celebrity, but furnished the basis on which an enormous private fortune has been built, by the monopolization of the mineral rights of the neighborhood. Credible authorities assert that the proprietors of the famous Woods Chrome Iron Mine have extracted therefrom 200,000 tons of ore, of the value of Nine Million Dollars. This source of wealth is not exhausted; but the death of the founder of the great monopoly seems to have weakened the force of his undertakings, and left an opportunity for the activity of others. It must here be remarked that, while the watchfulness and business zeal of the former owner of the Woods Mine secured for him the control of almost every spot of ground in the neighborhood upon which Chrome Ore had been discovered, or even suspected to exist, the property of Mr. Abner Carter, immediately adjoining that mine, never came permanently into his hands. This property now forms the mining ground of the Lancaster Chrome Mining and Manufacturing Company for two years past.

THE MINES OF THE COMPANY.

The foot of the serpentine hill on which the mines of Mr. Tyson, as well as those of this company, are located, is washed by Octoraro Creek. Not far from the creek, and a short distance above it, are the works and mines of Mr. Tyson. The pumps of his mines and the machinery of his dressing-works are driven by water-power, derived from the Octoraro. At 400 yards N.E. from these mines are those of the immediately adjacent property of the Lancaster company. These mines are about 80 feet above the Octoraro, and too far removed to make it feasible to drive the mining pumps and hoisting machinery by the water-power of that stream. There is, however, no reason why the future stamping and dressing works of the company should not be built upon the bank of that stream, and derive from it their motive power. The mines of the company consist at present of three principal works, viz.: An old shaft, the so-called "Carter," shaft, 154 feet deep; a new shaft, the "Texas" shaft, N.E. of the former, 142 feet deep; and a gallery, 240 feet in length, connecting the two. The shafts and the gallery are all in working order. The new one is the present working shaft, containing the pumps and hoisting machinery. The dip of the old shaft is 63° S.E.; its departure from the perpendicular is, therefore, six inches to the foot. The new shaft dips in the same direction 76°, having a departure from the perpendicular of three inches to the foot. The examination of these mining works leaves no doubt that the concretions of Chrome Ore have the general course of N.E.-S.W. This general parallelism of Chromic Ore seams, in a certain direction, justifies in speaking of zones of ore. The general truth of this observation, which is essential to the comprehension of the phenomena exhibited in these mines, and indicated by the deposit of ore, is not weakened by the fact that, in such zones of ore, a great number of smaller seams do not maintain the general direction, but, on the contrary, intersects it at all angles, as may clearly be seen in the Texas shaft. It has been already remarked that serpentine carries throughout its whole mass the most various segregations. This fact is true in the present case, but the peculiarity here is that the segregations of this serpentine belt lay in zones, which may be rich in Chrome Ore, or lean or barren. The exact course of these zones is N. 65° E. We believe their existence and significance are now pointed out for the first time; and we consider them of great importance in the work of mining upon these deposits.

* * * * Our own observations do not leave us in doubt that the openings on the property of the Lancaster Chrome Mining and Manufacturing Company are located on the continuation of the same Chromic Ore zone, the explorations of which, on Tyson's property, has been attended with such marvelous success and profit. In this opinion we are strengthened by the high authority of Dr. F. A. Genth, who says: "The three mines—Tyson's Woods Mine, and the two on the Carter property [the mines of the Lancaster Company],—appear, as far as can be judged

from the present developments, to have been worked on the same vein; in their geological character and mineralogical associations, no difference can be observed." In order to arrive at a just valuation of the merits of this property, it is our task to emphasize more strongly some of its important features already described, and to refer to other facts of significance in this connection.

1. These mines have been thus far opened according to the suggestions of Dr. F. A. Genth, whose advice has had principal reference to a proper development of the ground. The work has been performed with the aid of a steam engine. The Texas shaft, as a main working, hoisting and pumping shaft, could not be improved. The ventilation of the mines is secured by the gallery which connects the two shafts; so that the existing works may be accepted as a complete and suitable basis for the exploitation of the richer deposits of ore to the S. E. The engineer who may hereafter be charged with this work will perhaps find a heavier engine necessary for future operations.

2. The water collecting in the mines is insignificant in quanti ty and easily controlled by the present pumping machinery.

3. Wood, for such timbering in the underground works as may be required, is sufficiently abundant in the vicinity.

4. The Octoraro Creek furni-hes ample water-power for stamping and dressing purposes, in the immediate neighborhood of the mine.

5. The richness and value of the ores of the Woods Mine is historically establishe.l.

6. The identity of the zone of the Woods Mine with that upon which this Company is located, is beyond question.

7. The chromiferous character of this zone on the special property under consideration is proved by the following evidence:

a. A heap of rich ore, taken from the Texas shaft, while its dip still coincided with that of the ore-deposit, or rather before it entirely ran out of the latter, and from the end of the deep cross-cut, S. E. to the ore-zone. At this point, namely, a sink twenty to thirty feet in depth and twenty feet by thirty in size, has been excavated in the ore-zone, and about a hundred tons of rich ore have been extracted, constituting part of the heap at the shaft month already alluded to. In the bottom of this sink, three strings of Chrome Ore repectively twelve, nine and fourteen inches in width, and very likely connecting larger masses, were visible at the time of our visit. Two more bunches of ore stand in the hanging wall above this sink, and in the S. W. corner where the sink starts from the hanging wall. One is six inches wide, the other very near it. The gallery we have mentioned as connecting the Texas and Carter shafts does not start directly from the bottom of the Texas shaft, but from a point in the cross-cut. In this gallery, and not far from the Texas shaft, there appear in the hanging wall four more veins or strings of ore, varying in width from six to sixteen inches, and apparently parallel with each other, but cutting obliquely to the general direction of the great zones assumed in this report. The miners who worked in these veins think they will run together, forming a single larger one, and leading to a mass of still greater dimensions.

b. The ore still standing in rich bunches in seven or eight different points.

8. In order to determine the quality of these ores, we have tested them in our laboratory with the following results: Specimens of the ore, without gangue, were taken from the heap above mentioned. The average specific gravity of the ore was found to be 4-5, while that of the country rock (constituting the only gangue) was 2-5. There is therefore no difficulty in separating the two—a matter of essential importance in deposits like these. The dressed ore, without gangue, being subjected to careful analyses, was found to contain 55 per cent. of chromic oxide.

9. All indications seem, therefore, to concur in establishing the existence of a zone of ground, S. E. of the main shaft, having the course of N. 65° E. and a dip somewhere between 55-65° S. E., and containing bunches, veins, and masses of rich Chromic Ore.

ECONOMICAL VIEW.

We do not propose to extend this Report by entering upon a detailed discusssion of the manufacture of Bichromate of Potash, with estimates of original outlay, manufacturing, cost and profit. At the proper time we shall be happy to offer our views on that topic; but at present we deem it sufficient to state in a general way the economical conditions which attend the mining and utilization of the ore of the deposits. The price of 45 per cent. Chromic Ore is indeed remunerative, amounting to $1 for each unit of chromic oxide; but a great profit may also be realized by manufacturing the ore into Bichromate of Potash. We advise this course in the present case, and would only have the Company sell such ore as the capacity of their manufactory would not allow them to use. This was the policy of Tyson, who even accumulated large quantities of ore for future manufacture, rather than put the material for competition too abundantly into the hands of his rivals. It is well known that Bichromate of Potash is produced from the crude chromic iron, by smelting it at high temperature with oxidizing agents and potash or pearlash, which are mixed in different proportions by different manufacturers. Potash is preferable to pearlash, since it often contains as much as 25 per cent. of the caustic alkali. By smelting and lixiviation the chromate of potash is obtained, and by adding any acid of stronger affinity until half of the potassa is saturated, the Bichromate of Potash is finally produced. The simple fact that this salt is worth at wholesale from 18 to 20 cents, (this being about the present price), while the price in England (where all the materials for the manufacture are imported) is but 5d. sterling per lb., explains the immense profits which can be enjoyed by the American monopoly in this article. Estimating the cost of 45 per cent. ore at $45 per ton—in other words, passing to the mining account a large profit to begin with, we calculate that the cost of manufacturing Bichromate of Potash is from 12 to 14 cents per lb., and the net profit on its sale from 6 to 8 cents per lb. The calculation by which this result is attained is briefly sketched as follows: the quantities and relations assumed being taken from the statistics of practical working, and not from theoretical formulæ of chemical equivalence; and the prices of materials being rated at high rates:

COST OF MANUFACTURE PER 100 LBS. OF DRESSED ORE.

100 lbs. of ore at $45 per ton.	$2 25
45 lbs. of potash at 9 to 11 cents	4 95
15 lbs. of refined saltpetre 16 cents per lb.	2 40
Coal, chemicals, labor, incidentals	1 00
	$10 60

PRODUCTION.

One hundred pounds of ore containing 55 per cent. of Chromic Oxide would theoretically produce 105 lbs of Bichromate of Potassa; the practical result is about 78 lbs. We assume 75 lbs. of Bichromate, at 19 cents per lb., $14 25. Leaving a net profit, per 100 lbs. ore, of $3 65. The daily consumption of 3 tons of dressed ores would result in the production of at least 4 500 lbs. of Bichromate, upon which the profit would be, at 19 cts. per lb., selling price $.19.00. The product of the mine, over and above the requirement of this manufacture, may be reserved or sold to foreign establishments. The sale of the Bichromate is immense, and the demand frequently exceeds the supply. The profit of the manufacturer, it will be seen, is larger than that of the miner; since the latter realizes a net gain of perhaps $30 per ton, while the former, producing from that ton 1500 lbs. of Bichromate, sells at a profit of $75. With such results in view, and indications so favorable as those we have observed at the mines, we do not hesitate to recommend the active prosecution of the operations we have sketched, and to say we consider this opportunity for the investment of capital an inviting one.

ADELBERG & RAYMOND, Mining Engineers, 90 Broadway.
New York, November 30th, 1867.

MARKET REVIEW.

NEW YORK, Feb. 7, 1868.

Gold and Silver Stocks.—At the board, Con'd Gregory brings $4 90; Edgo Hill, $3 25@3 50; Quartz Hill, $1 05; Corydon, 38; Rocky Mountain, 18, and Smith & Parmelee $2 60. The market is quiet and is thus quoted:

	Bid.	Asked.		Bid.	Asked.
Alameda Silver	— 80	1 00	La Crosse Gold	— 40	45
American Flag	— 41	55	Liberty Gold	— 2	3
Atlantic and Pacific	— 35	60	Manhattan Silver	150 00	175 00
Bates & Baxter Gold	— —	1 10	Midas Silver	— 40	1 00
Benton Gold	— 32	40	Montana Gold	— 40	40
Black Hawk G	4 05	5 00	New York	— 87	95
Bobtail Gold	1 00	2 00	New York & Eld'o	— —	1 75
Bullion Consolidated	— —	1 00	Nye Gold	— 3	4
Columbian G. & S.	—	8	Owyhee Mining	— —	30 00
Combination Silver	50 00	70 00	Ophir Gold	— —	3 00
Consolidated Gregory	4 90	4 95	People's G. & S. of Cal	— 10	30
Corydon Gold	37	40	Quartz Hill	1 05	1 10
Edgehill Mining	3 40	2 45	Reynolds Gold	— —	— 5
Gold Hill	— —	4 00	Rocky Mountain Gold	— 18	20
Gunnell Gold	1 05	1 40	Smith& Parmelee Gold	2 65	2 70
Gunnell Union	— —	45	Sensenderfer	— —	8 00
H'n G & S. bs	— —	92	Symonds Fork Gold	— —	1 00
Harmon G. & S. bs	— —	6 00	Texas Gold	— —	— 10
Holman	— 5	10	Twin Riv. Sil	— —	70 00
Hope Gold	— —	29	Vanderburg G	— —	75
Kipp & Buell Gold	— —	30			

Copper Stocks.—There was no perceptible change in the state of the New York market in this class of mining stocks during the past week. Quotations ranged as follows:

Caledonia C	— —	— —	Gardiner Hill	— —	1 50
Canada	— —	— 28	Hancock	— —	— —
Central	17 50	— —	Hilton	— —	1 00
Copper Falls	19 00	— —	Isle Royal	— —	5 00
Davidson	32	35	Knowlton	2 80	— —
Evergreen B	— —	3 00	Minnesota	— —	5 00
Franklin	9 59	— —	Ogima	2 00	— —
			Rockland	— —	6 00

Petroleum Stocks are dull at the following rates:

	Bid.	Ask'd.		Bid.	Ask'd.
Benneboff Run	1 50	2 00	N. Y. and Alleghany	1 75	3 00
Brevoort	30	60	Pit Hole Creek	1 10	1 30
Buchanan Farm	30	33	Rathbone Oil Tract Co	—	50
Central	35	65	Rynd Farm	10	17
Clinton Oil	50	1 10	United Pet. Farms	....	10
Manhattan	....	10	United States	2 15	2 25
National	1 60	3 00	Union	1 25	—

Miscellaneous Stocks.—Cumberland Coal sells at 36¼; Pacific Mail Steamship Co. 111½@111¾; N. R. Central is quoted at 127¾; Erie 78⅝; Reading 94¼; Michigan Southern 90⅜; Northwestern 60; Northwestern preferred 74; Rock Island 98⅞; Fort Wayne 101¼; Adams Ex. 73@73; American 68½@70; United States 72⅝@73½; Wells, Fargo & Co., 42@42¼; Merchant's Union 35 per cent. 31@35; Quicksilver Mining 24@25; Mariposa Mining 8½; Rutland Marble 11.00; Wallkill Land 32.

Government Stocks are depressed notwithstanding the upward tendency of gold, and the steadiness of the Five-twenties at London. They range:

U. S. 6's, 1881, reg	111¼@—
U. S. 6s, 1881, coupon	111¾@112
U. S. 5-20s, 1862, regular	108¼@108½
U. S. 5-20s, 1862, coupon	111½@111⅝
U. S. 5-20s, 1864, coupon	109 @109½
U. S. 5-20s, 1865, coupon	109¾@100½
U. S. 5-20s, July, 1865, coupon	107¾@107⅞
U. S. 5-20s, July, 1867, coupon	107⅜@108
U. S. 10-40s, coupon	104½@104½
U. S. 7-30s, June, large	107⅜@107⅜
U. S. 7-30s, July, large	107⅜@107⅜

Foreign Exchange is quiet. There is a moderate demand for bills from merchants, but the supply of produce and cotton bills is limited, and rates are steady on the basis of 109¾@109⅞ for prime sixty days' sterling. The following are the currant rates:

London, (prime bankers') 60 days	109¾@109⅞
London, (prime bankers') sight	110¼@110¼
London, prime commercial	— —
Paris, (bankers') long	5.16¼@ 5.13¼
Paris, (bankers') short	5.13¼@ 5.11¼
Antwerp	5.17½@5.15
Swiss	5.17½@5.15
Hamburg (bankers')	31¼@ —
Amsterdam (bankers')	41⅜@ —
Frankfort (bankers')	40¾@41
Bremen (bankers')	78¼@79
Berlin (bankers')	71¾@71⅝

Gold is strong. The price, after opening about 141¾, steadily advanced to 142⅛.

Money continues very abundant at 4a5 per cent. on call. Discounts are quiet at 6a7 per cent.

The Empire Gold Mining Company of North Carolina, has declared a dividend of two per cent for the month of January, payable Feb. 10, at the office of the Company.

The continued glut of bullion in the Bank of France is noticed in the London *Times* as follows: "The further increase of £1,000,000 this week in the bullion of the Bank of France has raised the total now held to £41,087,000, being nearly half a million sterling in excess of the enormous, and at that time, altogether unprecedented amount held at the end of December. This condition of the Bank is especially striking when the fact is borne in mind that the French harvest of 1867, like our own, was so bad as to necessitate unusually extensive purchases of foreign wheat, and a proportionate outflow of specie in payment of it. The inference is, therefore, unavoidable that the contention now prevalent throughout Europe as to which nation can raise and perpetuate the largest armaments, has paralyzed commerce to an extent never before witnessed, and will continue to create a feeling of distrust that may be ultimately destined to prove intolerable, and to cause an easy concurrence in any events that would hold out the prospect of relief."

The shipments of treasure from this port Wednesday and Thursday amounted to $820,000, consisting chiefly of gold and silver bars.

The following will show the exchange on Thursday at the New York Gold Exchange Bank:

Gold cleared	$51,202,000 00
Gold Balances	2,176,529 18
Currency Balances	3,069,072 07

American silver sells slowly at 7a8 cents below the price of gold. Mexican dollars are quoted at 102¾a103¼ in gold.

Petroleum.—Crude is held at substantial figures; do. in bulk may be quoted at 11¼a11½c; 880 bbls. deliverable next week at 11⅜c. Bonded—there is a firmer market; 25c. is the quotation for standard white; 1,000 bbls. were sold at this price, and 1 000 bbls deliverable seller's option balance of the month, at 25c.

For Philadelphia delivery the transactions are unimportant.

Receipts for the week ending Feb. 4	pkgs 8,118
Exports for the week	galls 386.425
Do. from January	do. 3.899,382
Do. same time last year	do 2.371,991

Metal Reports.—We refer the reader to Mr. Winterhoff's Circular, in another column, for information relative to the New York market in Metals.

THE IRON TRADE.

NEW YORK, Feb. 7, 1868.

Domestic.—The market in pig iron has somewhat improved, but has not as yet shaken off all its lethargy. During the past week Scotch has been very quiet, and will probably continue so as long as best American maintains its present favorable difference in price. In rails the market is quiet, but indications are in favor of a brisk demand. We note sales of 1,500 tons No. 1 Thomas a $35,00; 200 tons old rails; 8,000 tons new rails; and 100 tons No. 1 scrap. In addition to the above we hear that a large lot of crane iron has lately been sold. In manufactured iron business is quiet, owing somewhat to the bad weather. Card prices remain unchanged.

Foreign.—The iron trade of Great Britain, according to latest advices, exhibits no very encourrging appearance. Export business is seasonably quiet, and the home trade, although enlarging every week, expands but in very small and slow degrees, creeping with difficulty beyond the circle of immediate events. There has been no reduction in prices, although both in pig and manufactured iron the ore is a marked irregularity and a weakness about their margin. In Swedish iron, as the Swedish ports are now closed, there is but little business doing. In Scotch pig iron a moderate good business has been done, but at low prices; at one period of the week the price went up to 51s. 9d. cash, but afterwards declined to 51s. 6d. cash, at which it remains.

Boston Imports of Pig Iron from Jan. 1 to Feb. 1. 1868.

	1868.	1867.
From Great Britain, tons	260	1,783
Coastwise Ports	3,064	54

Lehigh Valley Iron Trade.

The following table shows the amount of Pig Iron transported over the Lehigh Valley Railroad for the week ending Feb. 1, 1868:

From	Tons.	Total
Carbon Iron Co.	150	1.120
Lehigh Valley Iron Co.	220	1.170
Thomas Iron Co.	405	1,985
Lehigh Crane Iron Co	310	1,220
Allentown Iron Co.	10	215
Robert Iron Co.	100	1,045
Glendon Iron Co.	215	1.705
Other shippers	50	446
Total	1,460	8,906

Iron Shipments from Liverpool to the United States.

The following are the shipments of Iron from the port of Liverpool for the week ending Jan. 25, 1868:

CHAINS AND ANCHORS.—New York 14 tons chains; San Francisco 2 tons chains.
IRON, BAR AND BOLT.—Boston 59; New York 95; Philadelphia 139; Portland 14; San Francisco 215.
IRON, HOOP, tons.—New York 40; Philadelphia 54; Portland 53; San Francisco 22.
IRON RODS, tons.—Boston 13; Philadelphia 14.
IRON SHEET, tons.—San Francisco 156; New York 42; Boston 16.
IRON WIRE, tons.—San Francisco 8.
STEEL, tons.—Boston 28; New York 278; Portland 17; San Francisco 46.

Comparative Iron Exports from Liverpool to New York, Boston and Philadelphia.

In presenting the following important table to its readers, the "Iron Trade Circular" remarks:—"The comparison on every column of the top line for 1862 with the bottom line for 1867, may give occasion to serious reflection why it is that our trade in Iron with our brethren, having the same wants and habits as ourselves, has scarcely increased for 15 years." The use of Iron has not decreased in the States, but, on the contrary, has rapidly ahead of us, in spite of our advantage of coal and labor? Within that period the population of the United States has trebled—but our Iron exports thither have, if anything, diminished. Tin Plates, the growth of population, and therefore of house-building, has demonstrated itself, being 978,800 boxes in 1867, against 426,872 in 1862. The deduction is clear—Tin is not to be produced in the States in consumption from England, the cost of but Iron is native to the soil, and the working of Iron—simply in articles of prime necessity—is no great mystery. Hence the result shown in figures subjoined:

	NEW YORK.						PHILADELPHIA.						BOSTON.					
	Hoops	Rails.	Bars and Rods.	Pigs and Scrap.	Sheets and Plates.	Tin Plates.	Hoops	Rails.	Bars and Rods.	Pigs and Scrap.	Sheets and Plates.	Tin Plates.	Hoops	Rails.	Bars and Rods.	Pigs and Scrap.	Sheets and Plates.	Tin Plates.
	Tons.	Tons.	Tons.	Tons.	Tons.	Boxes.	Tons.	Tons.	Tons.	Tons.	Tons.	Boxes.	Tons.	Tons.	Tons.	Tons.	Tons.	Boxes.
1852	5,857	71,729	41,003	29,198	10,635	361,057	1,076	2,039	18,253	2,643	3,041	42,291	651	700	9 737	6,305	1 036	22,714
1853	6,583	62,977	51,201	39,754	15,276	448,906	1,574	130	20,574	6,774	4,112	32,624	1,370	....	13 049	11,892	1 421	27,503
1854	7,197	23,462	55,916	28,207	12 529	337,536	1,497	1,807	24,045	7,286	5,052	41,978	1,094	279	11 585	9,950	1,241	11,021
1855	6,606	9,606	43,440	12,680	8,345	433,836	1,227	1,512	18,186	755	3 389	29,157	890	25	7,071	1,770	699	13,220
1856	6,766	14,667	42,809	11,664	15,140	490,724	1,392	1,363	12,463	1,582	5,052	43,500	828	981	7,854	1,662	1,114	16,315
1857	6,018	24,236	44,829	29,610	13,131	389,767	1,402	294	12,731	1,622	2,307	28,997	727	930	7,032	1,430	1,341	19,621
1858	5,202	1,732	29,610	11,684	10,035	402,635	1,160	462	11,147	1,382	1,852	36,874	957	827	6,890	1,688	661	17,718
1859	9,382	3,913	55,090	13,736	10,035	561,484	1,883	174	20,189	1,264	3,698	37,184	1,179	570	10,892	1,656	762	27,682
1860	7,104	2,625	47,579	5,224	8,457	588,374	2,115	....	23,046	862	3,002	29,618	1,046	966	13,193	1,264	1,479	29,624
1861	1,523	1,850	11,424	4,168	2,999	208,130	501	304	6,101	555	1,165	16,863	180	....	1,341	827	117	6 548
1862	3,063	2,569	25,448	2,549	6,583	485,571	723	....	14,040	1,005	2,066	56,217	908	....	4,441	140	205	20,724
1863	3,942	13,338	35,410	7,725	6,995	538,121	853	....	14,810	142	1,789	35,788	1,214	111	2,371	1,173	774	12,106
1864	4,994	1,779	40,739	18,269	5,226	393,746	934	105	16,417	940	1,954	42,829	1,631	723	3,824	1,727	80	16,423
1865	6,539	5,330	43,421	21,117	3,340	650,492	848	37	8,615	1,579	1,371	65,687	413	667	842	2,107	123	29,759
1866	6,443	10,999	39,031	24,039	9,941	766,628	1,331	742	19,352	3,662	1,550	84,564	1,862	2,424	2,525	2,215	198	40,639
1867		21,333	13,379	23,616	6,147	816,584	932	1,155	14,764	3,877	2,470	92,745	1,980	8,083	2,305	2,972	225	66,491

Market Prices.

NEW YORK, Jan. 31, 1868.

DUTY.—Bars, 1 to 1½c. per lb.; railroad, 65c. per 100 lbs.; boiler and plate, 1½c. per lb.; sheet, band, hoop and scroll, 1¾ to 1¾c. per lb.; pig, $9 per ton; polished sheet, 3c. per lb. Payable in gold.

Anthracite, No. 1, best.	$38 00@—	—	Swedish Iron.	
" " 2x, fdry,	35 00	36 00	1½x¾ to ½ and ¾ in sq	155 00
" Grey Forge,	33 00	34 00	1¼x¾ to ½	160 00
Scotch Pig, from yard	30 00	32 50	6 to 12x¾ to 5-8	160 00
Charcoal, coal blast	50 00	60 00	Common Iron	
Old Wrought sc'p. fm yd.	42 50	— —	¾ to 2 in. round and sq	85 00
" " fm. vsl.	39 00	— —	Refined Iron.	
English rails, gold	52 00	53 00	¾ to 2 in. r'd and sq	95 00
American " at works	77 00	79 00	1 to 6 in. wide x ¾ to 1 th	95 00
Old Railroad Iron	45 00	—	3¼ and 3½, round and sq	105 00

JOBBERS' PRICES.

Hoops, ¾ per ton		$185 00	Rods—5-8 and 11-16, round & sq., per ton	100 00
" ¾ "		155 00	½ and 9-16 round & square.	105 00
" ½ "		145 00	7-16, round and square	115 00
" 1 "		135 00	⅜ " "	120 00
" 1½ "		130 00	5-16, " "	125 00
" 1¼ to 2 per ton		130 00	¼, " "	130 00
Scroll Iron—¾x14	per ton	170 00	3-16, " "	160 00
" 12	"	160 00	Horse Shoe Iron	125 00
" 10	"	150 00	Band—1 to 6 in. x 3-16 to No. 10	125 00
" 3-16	"	140 00	Ovals and half Rounds.	
" ¼	"	132 50	¾ to 1¼	120 00
" ¾x14	"	150 00	⅝ & 11-16	125 00
" 12	"	147 50	½ & 9-16	130 00
" 10	"	142 50	Nail Rods, per lb.	
" 3-16	"	132 50	"	9@10½
" ¼	"	127 50	Norway Shapes	8½c
" ⅜x14	"	140 00	Spring Steel	10@10½
" 12	"	137 50	Tire " ⅞ to 1¼x¼ & 5-16	10¾c
" 10	"	132 50	Toe Cork Steel	10¼c
" 3-16	"	127 50	Sleigh Shoe Steel	10¼c
" ¼	"	125 00	Plow Steel—6 to 14x¼ to ⅜	10c
Swed'h Fn, ord'y sizes, ⅝ to 2 in. sq., per ton		150 00		

BOSTON, Feb. 5, 1868.

Swedish—common ass'd	$150@155	Scotch Pig, No. 1	
English—com	85 90	Gartsherrie	$43@45
do refined	95 100	No. 1, other brands	42 45
do sheet, per lb	6½@10c	American, No. 1	42 48
Russia, sheet	15@16c		

PITTSBURGH, February 1, 1868.

Pig Iron and Blooms.—The market for crude irons continues fairly active, which is more especially true of forge descriptions, and although there is not the least disposition to buy speculatively, the sales indicate a fair consumptive demand.

We are advised of negotiations being had for some large lots, but as yet the details have not transpired.

Foundry descriptions continue dull, and with but a limited consumption; prices are but nominal. We quote the following rates.

BITUMINOUS COAL SMELTED FROM LAKE SUPERIOR ORES.

1,000 tons Medium Gray Forge, deliverable at furnace, at equal to..... $37.00—4 mos.
500 tons Medium Gray Forge, deliverable at furnace, at equal to..... 35.50—cash.

(At furnace for another market.)

350 tons White and Mottled at furnace, a favorite brand..... 35.00—cash.

(For another market.)

100 tons Medium Gray Forge..... 38.00—4 mos.
100 tons " " ..... 37.00—4 mos.
240 tons Mottled " ..... 36.00—6 mos.
200 tons Close " ..... 36.50—5 mos.
200 tons Close Gray Forge, ... 37.06—4 mos.
200 tons Open " ..... 39.50—5 mos.
40 tons No. 2 Foundry, ... 42.50—4 mos.
36 tons No. 1 " ..... 43.00—4 mos.
470 tons Mahoning Forge, ... private terms.

ANTHRACITE.

20 tons No 1 Foundry, ... $45.00—4 mos.
160 tons White Forge, ... 29.50—4 mos.
100 tons Marietta, ... 38.00—7 mos.
35 tons White Red Short, ... 32.00—4 mos.
200 tons Gray Anthracite, ... 36 50—5 mos.
240 tons Mottled and Gray, ... 36.00—6 mos.
200 tons Western Gray ..... 37 00—4 mos.
100 tons Western Gray, a favorite brand, ... 37.50—4 mos.
200 tons Gray Forge, ... 39 50—5 mos.
40 tons No. 2 Foundry, ... 42.50—4 mos.
36 tons No 1 Foundry, ... 45.00—4 mos.

CHARCOAL.

100 tons Gray Forge, ... 48.00—4 mos.
70 tons " ..... 48.25—5 mos.
50 tons Empire Forge, ... 37.00—6 mos.
90 tons low grade Hanging Rock ..... 38.00—6 mos.
65 tons " " ..... private terms.

BLOOMS.

30 tons No. 1 Juniata Blooms ..... $93.00—6 mos.
40 tons No. 1 Juniata Blooms ..... private terms.

Iron Bars and Nails.—During the past week there has been but a limited amount of orders received for iron bars and nails. Nearly all the mills are running more or less according to the demand, and to stock up for the spring trade, which is anticipated to be good, although it will not be as active as usual. We have no change to note in prices from those reported during the past three weeks.

Steel.—The market for this article continues very dull, no transactions of any moment whatever having been reported for some weeks past. Prices remain unchanged.

LONDON, Jan. 25, 867.

(From the London *Mining Journal*.)

Bars, Welsh in Lond.	£6 10 0@.. ..	To arrive	10 5 0 10 10 0
Ditto to arrive	6 10 0	Do. railway, Wales.	£5 0 0@£5 10 0
Nail rods	7 0 0 7 10 0	Do. merch. Tyne or	
" Stafford in Lond.	7 10 0 8 10 0	Tees	6 10 0 .. ..
Bars	7 10 0 8 10 0	Pig, No. 1, in Clyde.	2 13 0 3 0 0
Hoop	8 10 0 9 12 6	Do. f.o.b. Tyne, Tees.	2 9 6 .. ..
Sheets, single	9 5 0 10 0 0	Do. Nos 3, 4, f.o.b. do	2 6 6 2 7 0
Pig, No. 1, in Wales	3 15 0 4 5 0	Railway chairs	5 10 0 5 15 0
Refined metal, ditto.	4 0 0 5 0 0	" spikes	11 0 0 12 0 0
Bars, common, ditto.	5 15 0 6 0 0	Indian Charcoal Pigs	
Do. Swd. in Londn..	10 5 0 10 10 0	in London	7 0 0 7 10 0

STEEL.

Swed., kegs (rolled)	14 5 0	Swed., in faggots	16 .. .. ..
" (hammered)	15 5 0 15 10 0	English, spring	17 0 0 23 .. 0

THE COAL TRADE.

NEW YORK, Feb. 8, 1868.

A better feeling has manifested itself in the trade during the past week. The almost impassible state of our streets makes the retail trade slow, while the ice in our rivers makes shipping very precarious and difficult. Freights are variable, depending greatly upon the facilities and state of the vessel. We learn that shipments from Elizabethport to this city have been made at 60 cents. To Boston and East generally, they range from $2 00 to $3.25.

The Central Railroad Company have issued the following notice:

NEW YORK, January 28 1868.

The following regulation has been adopted this day by the Executive Committee, and will be put in operation forthwith. Parties desirous to make arrangements for the present season, will please apply to the Superintendent.

Resolved, That no allotment of space be made at Port Johnston or Elizabethport, to any coal shippers doing business at other shipping points, or over other roads.

JOHN TAYLOR JOHNSTON, President.

We think the above should have been adopted long ago. Small shippers have been inconvenienced greatly by all the facilities at the pockets being monopolized by large firms storing their coal, scot free, at three or four different places.

The following circular reached us on Thursday last. We give it in full for those who are immediately interested:

PHILADELPHIA, January, 31, 1868.

A meeting of gentlemen, representing a number of companies incorporated by the State of Pennsylvania, was held in this city on Wednesday, the 29th inst., for the purpose of devising means for the modification or repeal of the Second Section of the Act of Assembly approved April 30th, 1864, entitled An Act Imposing Additional Taxes for State purposes, and to Abolish the Revenue Board, which imposes a tax of three per centum to the State upon the net earnings or incomes of certain Corporations and Companies therein, designated, in addition to the tax imposed by laws in force prior thereto.

Although the injustice done to incorporated companies, by the operation of the law under the Section above indicated, must be apparent to all, yet the gentlemen composing the Convention feel that well-organized and persistent efforts, by those injuriously affected by the Act, are necessary to secure its modification or repeal. With this object in view, it was deemed expedient to inform the various Corporations in the State of the movement inaugurated by the meeting and to urge them to lend their assistance in carrying out its object. You are therefore respectfully but earnestly requested to use your influence, immediately, over your representatives in both branches of the State Legislature, in securing the repeal of this unjust law, a law rendered doubly obnoxious by an assurance that the revenue derived from the source which it creates is not essential to the financial prosperity of the State.

By order of the Committee. HENRY MCALLISTER, JR., Secretary, No. 522 Walnut street, Philadelphia.

Messrs. John White & Co., of this city, have associated with them Mr. Lindley H. Fowler, a gentleman of large experience, for the transaction of a general commission Coal Business. Messrs. John White & Co., have done a very successful business during the past year, and though a young firm, now rank among our leading dealers. They are agents for many of the well-known coals.

We have printed on card board our Annual Coal Trade Review which appeared in last week's JOURNAL OF MINING. Subscribers can have one copy of the same sent free; extra copies 25 cents.

The following table shows the quantity of Coal shipped over the principal roads for the week ending February 1, 1868, compared with that shipped the same time last year:

	1867.		1868.		INC. OR DEC.	
	WEEK.	YEAR.	WEEK.	YEAR.	WEEK.	YEAR.
Phil. & Reading R. R.	45,896	224 233	27 64[illegible]	314 135	[illegible] 18,247	[illegible] 85,895
Lehigh Valley R. R.	17 042	143,-24	30,601	305,77[illegible]	[illegible] 12 65[illegible]	[illegible] 172 345
Scranton No. th	6,482	24,0 2	9 17[illegible]	39,31[illegible]	[illegible] 3,696	[illegible] 12,802
" South.	19 59[illegible]	87,179	21,203	90,681	[illegible] 1,70[illegible]	[illegible] 3,302
Penn'a Coal Co. Rail.	.....	39 281	11 04[illegible]	55 65[illegible]	[illegible] 11 062	[illegible] 25,259
Shamokin	6,635	25,734	5,810	23,38[illegible]	[illegible] 825	[illegible] 652
Trevorton	517	1,415	189	1,57[illegible]	[illegible] 62	[illegible] 399
Short Mountain	437	2,482	502	2,799	[illegible] 065	[illegible] 317
Lykens Valley C. Co.	4 6	2.145	1,590	6,737	[illegible] 1,184	[illegible] 4,572
Broad Top	5 321	13,617	2,330	11,244	[illegible] 917	[illegible] 2,373
W'mstown Co'y, E.	1 914	6.122	957	12,112	[illegible] 957	[illegible] 6,989
1868	103.049	.....	111.191	865 094	.....	.....
1867	.....	555,333	103,049	555,33[illegible]	.....	.....
Increase	.....	.....	8,142	309 761	.....	.....

Schuylkill Coal Trade.

BY RAILROAD, FOR WEEK ENDING FEB. 6, 1868.

St. Clair	16.490
Port Carbon	2,472
Pottsville	796
Schuylkill Haven	9,628
Auburn	413
Port Clinton	6,464
Total for week	[illegible],[illegible]
Previously this year	3 [illegible],133
Total	[illegible],996

Lehigh Coal Trade.

SHIPPED BY RAILROAD FOR THE WEEK ENDING FEBRUARY 1, 1868.

WHERE SHIPPED FROM.	WEEK. Tons. Cwt.	PREVIOUSLY Tons. Cwt.	TOTAL. Tons. Cwt.
WYOMING REGION.			
Franklin Coal Co.	.....	.....	.....
Audenreid	.....	50 06	50 06
Lehigh & Susquehanna	.....	.....	.....
Germania Co.	219 14	1,855 02	2 074 16
Wilkesbarre Coal & Iron Co.	844 17	6,736 08	7.581 05
Warrior Run	466 04	2,666 07	3 132 11
Parrish & Thomas	825 16	9,476 13	10,303 09
New Jersey	311 12	2,443 08	2,755 00
Union	109 07	593 04	702 11
Wyoming Coal & Transportation Co.	84 18	2,616 03	2,701 01
Newport C. C.	.....	.....	.....
Morris and Essex Mutual C. C.	.....	681 19	681 19
Consumers	.....	147 18	147 18
Everhart C. Co	.....	.....	.....
Plymouth C. C.	.....	152 14	152 14
H. B. Hillman & Son	.....	1,803 12	1,803 12
Bowkley, Price & Co.	.....	149 08	149 08
Mineral Spring	427 12	2,147 06	2,574 18
Valley Coal Co.	.....	.....	.....
Enterprise Colliery—J. H. Swoyer	675 03	3,193 12	3,868 15
G. B. Linderman & Co	.....	.....	.....
Washington C C	.....	.....	.....
West Pittston	.....	.....	.....
Barclay Coal Co	.....	.....	.....
Shawnee	302 00	1,060 01	1,362 16
Consumers Coal Co.	90 05	689 02	679 07
Harvey & Bro.	45 01	726 07	771 08
Wyoming Valley	73 18	45 11	119 09
Other shippers	.....	.....	.....
Total Wyoming	4.567 16	37,045 07	41 613 03
Same time last year	6,750 15	36 484 07	43,235 02
Increase	.....	561 00	1,621 19
Decrease	2,182 19	.....	.....
B. M. REGION.			
New York & Lehigh	685 13	8,233 04	8,918 17
Honey Brook	2,259 00	13,787 11	16,047 00
German Penna. Coal Co.	530 18	4 921 09	5,452 07
Spring Mountain	1,454 01	9 566 00	10 920 11
Coleraine	1,358 08	5,634 10	6 992 18
B. Meadow, D. W.	.....	.....	.....
John Connery	.....	.....	.....
Lehigh Zinc Co.	.....	.....	.....
Spring Brook	.....	.....	.....
Other Shippers	5 00	52 12	57 12
Total B. M. Reg	6,193 19	42,195 06	48,389 05
Same time last year	2,510 10	38,945 08	41,455 18
Increase	3,683 09	3,249 18	6,933 07
Decrease	.....	.....	.....
HAZLETON REGION.			
Central Coal Co.	.....	.....	.....
Ashburton Co.	58 02	84 15	142 17
Mount Pleasant	334 16	3,155 15	3,490 11
Hazleton	2,382 14	32,5.6 01	34,908 15
East Sugar Loaf	1,593 05	21,298 13	22,891 18
Mount Hall	.....	219 14	219 14
Latimer (A. Pardee, Jr., Bro. & Co)	233 13	3 571 05	3 804 18
Stout Coal Co.	10 10	3,785 11	3.796 01
Harleigh	1,095 09	8,829 10	9 925 09
Ebervale C. Co.	360 03	10.882 08	11.242 11
Jeddo (G. B. M. & Co).	2,151 01	19,864 11	22 018 12
Woodside, J. C. Co.	139 00	1,442 04	1 581 04
Highland Coal Co.	1,124 04	10,466 00	11,590 04
Cross Creek	228 17	3,006 17	3,235 14
Council Ridge	1,447 04	14,993 12	16,440 16
Buck Mountain	1,266 18	6,142 16	7,509 14
Other shippers	.....	.....	.....
Total Hazleton	12 528 16	140,270 02	152,798 18
Same time last year	2.121 00	11,820 04	1 ,941 04
Increase	10,407 16	128,449 18	138,857 14
UPPER LEHIGH REGION.			
Upper Lehigh Coal Co.	1,066 11	10,720 11	11,787 02
Total U. L. Reg.	1,066 11	10,7.0 11	11,787 02
MAHANOY REGION.			
Trenton Co.	.....	.....	.....
Mount Etna	.....	591 00	591 00
Mahanoy Colliery	734 06	3,508 14	4 242 14
Delano	.....	.....	.....
Glendon Colliery	845 09	4,206 11	5,052 00
Primrose Colliery	.....	550 05	551 05
E. S. Silliman	2,153 09	15 712 17	17,866 06
McNeal Co.	114 13	2,828 13	2,944 06
Knickerbocker	1,110 13	6.594 08	7 705 01
Thomas Coal Co.	.....	2,462 19	2,462 19
Williams & Herring	305 00	1 046 17	1 352 06
New Boston C. C.	488 16	4,631 11	5 120 07
Shamokin C. C.	.....	.....	.....
Caledonia M. and M.	491,15	2,793 00	3,284 15
Coal from Catawissa Railroad	.....	.....	.....
Other shippers	.....	15 13	15 13
Total Mahanoy	6,244 07	44 042 08	51,186 15
Same time last year	6.660 11	28,236 15	34.797 06
Increase	.....	16,705 13	16,389 09
Decrease	316 04	.....	.....
Grand total	30 601 09	275,173 14	305,775 03
Same time last year	17 942 16	115,456 14	133,429 10
Increase	12 658 13	159,657 00	172 345 13
Decrease	.....	.....	.....

Cumberland Coal Trade.

By B. & O. RAILROAD.—The shipments over the Baltimore and Ohio Railroad, for the week ending Feb 5, were as follows:

From Cumberland & Pa. R. R.		
Consolidation Company		1.528 03
Borden	do.	1,278 03
New Hope	do.	312 05
From Eckhart R. R.		
C. C. & I.	do.	386 19
Total		3,405 15

No report from the Piedmont region.

San Francisco Coal Trade.

SAN FRANCISCO, December 30, 1867.

Imports from January 1st to December 15th:

Anthracite, tons	46 834	Coos Bay, tons	5.130
Bellingham Bay, tons	8,[illegible]99	English, tons	6373
Cumberland, cks	7,172	Mt. Diablo, tons	95,130
" tons	9.591	Saghalien, tons	218
Chili, tons	14,039	Sydney, tons	26,619
Fuca Straits, tons	500	Vancouver Island, tons	14.929

The importation of 1,534 tons, per A. M. Minott from New York, was to the Pacific Mail S. S. Co. The California supply for 867, approximates 100,000 tons from Mt. Diablo mines, valued at $500,000. The article is largely used for steam purposes, selling at low prices and thus displaces a large amount heretofore brought from afar. We quote Australia $13@14; Anthracite $15@$17; Coronel $12@12 50; Cumberland $20@22; California $7@9 per ton.

Prices of Coal by the Cargo.

[CORRECTED WEEKLY.]

At New York, February 7, 1868.

Schuylkill R. A..	choice	$5 75@$6 00	Lehigh Broken	5 25	....
"	Ordinary	5 25 5 50	" Egg	5 25	....
"	W. A. Lump	5 25 5 50	" Stove	6 80	....
"	Steamboat	5 25	" Chestnut	4 20	....
"	Broken	....	Wilkesbarre Lump	5 25	....
"	Egg	....	" B'k'n & Egg.	5 25	....
"	Stove	5 50 5 75	" Stove	6 50	....
"	Chestnut	4 00 4 25	" Chestnut	4 75	....
Lehigh White Ash Lump.		5 37 ...			

SPECIAL COALS.—DEALERS' QUOTATIONS.

Diam'd Vein R. A.,	Sch'kill	....	H Heils. E. S'kiln. Lorb..	5 50	....
Locust Dale W. A.,	"	....	New England Red Ash	5 25	....
Honey Brook	" Lehigh.	5 50	Broad Mountain	5 25	....
Harleigh	" "	5 50	Wyoming	5 00	....
Spring M'n	" "	5 50	McNeal Co.	5 50	....
Sugar Creek	" "	5 50	Locust Mount'n (Repplier)	5 50	....
Ashburton	" "	5 50	Duncan Red Ash	6 00	....
Fulton White Ash		5 50	W'barre Coal & Iron Co.	5 25	....
Stout		5 50	New Burgh Orrell Gas Coal	9 00	....
Old Co'ls		5 50	Despard Gas Coal	9 00	....
Buck Ridge W. A.,	Sh'kin.	5 00			

Dealers in these Coals may be found in our advertising columns.

At Philadelphia, February 7, 1868.

Lehigh Lump and St'mb't.	$5 00@....	Schuylkill Chestnut	2 75 ....
" Broken and Egg	5 00	Locust Mount Lump and	
" Stove	5 00	Steamboat	4 25 ....
" Chestnut	3 75	" Broken	4 25 ....
Schuylkill R. A. Prepared	4 25 4 50	" Prepared	4 25 ....
" Chestnut	2 75	" Chestnut	2 87 ....
" W. A. Lump and Steamboat	4 25	Lorberry Coal	4 75 ....
" Broken	4 25	Shamokin	4 75 ....
" Egg and Stove	4 25 ..	Franklin. (Lykens Valley)	4 75 ....
		Broad Top	4 75 ....

Scranton Coal at Elizabethport, February 7, 1868.

(Corrected weekly by D L. & W. R. R. Co.)

Lump	$4 25@....	Egg	5 00 ....
Steamer	4 50	Stove	5 50 ....
Grate	4 75	Chestnut	4 50 ....

Prices for Pittston Coal at New York, February 7, 1868.

(Corrected weekly by Penna. Coal Co.)

Lump, per ton of 2240 lbs.	$5 40@....	Egg " " "	5 40 ....
Steamer, " " "	5 40	Stove " " "	5 50 ....
Grate " " "	5 40	Chestnut " " "	4 90 ....

Lackawanna at New York, February 7, 1868.

Lump	$5 5[illegible]@....	Grate	5 75@....
Steamer	5 50@....		

Lehigh Coal at Elizabethport February 7 1868.

Lump	5 50@....	Chestnut	4 50 ....
Steamboat and Brokene	5 25	Stove	5 50 ....
Egg	5 25		

At Baltimore, February 7, 1868.

Wilkesbarre & Pittston W. A. by cargo or car	$5 50@5 75	From wharf or yard, 75c. to $1 per ton additional.	
Lykens Valley R. A. by cargo or car	5 75@ 6 25	Retail, del'd, per 2,240 lbs	7 00@7 75
Sunbury & Shamokin R. or W. A. by cargo	5 50 5 75	George's C'k and Cumberland f. o. b. at Locust P't for shipping	4 85@5 00

At Havre de Grace, Md.

Wilkesbarre or Pittston, W. A., on board	$4 85@5 10	Sunbury or Shamokin, R. or W. A, on board	@5 25
		Lykens V'y. R. A. on b'd.	5 60@5 85

The above rates are only nominal. Shipping at this port is suspended for the season.

At Georgetown, D. C.

George's Creek and Cumberland on board ..... $4 25@ 4 50

Wilkesbarre Coal at Elizabethport, February 7, 1868.

(Corrected by Wilkesbarre Coal & Iron Co.)

Lump	$4 50	Egg	5 00 ....
Steamer	4 50	Stove	5 25 ....
Broken	4 75	Chestnut	4 50 ....

Ten cents additional on shipments from Jersey City.

Prices of Provincial Coals.

[CORRECTED WEEKLY BY LOUIS J. BELLONI, JR., 43 PINE STREET.]

Duty $1.25 per ton

Block House (on board)	$2 00 gold	Little Glace Bay	1 87½ "
Gowrie "	1 75 "	International Co.'s "	1 75 "
Lingan "	1 75 "	Slack Coal B. H., "	75 "
Sydney "	2 25 "	" L. G. B.,	1 00 "
Pictou "	2 25 "		

Prices of Foreign Coals.

Duty $1.25 per ton.

Corrected weekly by PARMELEE Bros., 32 Pine Street, N. Y.

Liverpool Gas Caking	$11 00	Liverpool House Cannel	—@20 00
" " Cannel	14 00	" " Orrel	16 00@18 00

Per ton 2240 lbs., Ex. ship.

PRICES FROM YARD

Liverpool Orrel, screened	$18@20	Liverpool Cannel, scr'd	22 00@— —

per ton 2000 lbs. delivered.

Coal Freights.

(Corrected Weekly.)

From Elizabethport.

Albany	$ 90@— —	New London	1 50@— —
Boston	2 25 2 00	Newport	1 75 — —
Bridgeport	1 25 — —	New York	55 60
Fall River	1 75 — —	Norwalk	1 25 — —
Hartford	1 50 — —	Norwich	1 65 — —
Hudson	1 00 — —	Pawtucket and towing	2 00 — —
Lynn	— — — —	Portland	2 25 — —
Middletown	1 25 — —	Portsmouth	2 15 — —
New Bedford	1 75 — —	Providence	1 55 — —
Newburyport	2 50 — —	Salem	2 25 — —
New Haven	1 25 — —	Taunton	1 40 — —

From Washington, N. J.

Hackettstown	$ 58	Iron Dale	$ 1 19
Waterloo	81	Dover	1 24
Stanhope	90	Paterson	1 80
Port Morris	99	Pompton	80
Rockaway	1 32	Bloomfield	1 80
Denville	1 33	Newark	2 00
Boonton	1 44	Belleville	2 10
Little Falls	1 70	Communipaw	2 10
Drakesville	1 08	Jersey City	2 20
Dickerson's Basin	1 11	New York	2 20

Foreign Freights.

New Castle and Ports on Tyne ..... £17 keel.
Liverpool ..... 13 6@15s. ton.

Monthly Metal Circular.

NEW YORK, February 6, 1868.

My last Circular was dated 31st December. The new year opened with a sudden rise in Gold, and more disposition was shown to do business, but it did not continue long, and the last three weeks have again been very dull in all branches of trade. Congress has not yet adopted any financial measures of importance beyond a bill to suspend further contraction of the currency.

Gold advanced from 133¼ per cent. on the 2d of January to 142¾ per cent. on the 14th; it declined to 138¼ per cent. on the 18th ult., and has since steadily advanced. To-day it is quoted 142 per cent. Exchange on London, 9¾ per cent.

TIN.—In the first week of January, 2,000 slabs Straits changed hands at 24c. Gold, part to arrive; and shortly afterwards 800 slabs in Boston at the same price. Since then no wholesale transactions have taken place, and the quotation of 24c. is quite nominal. 500 slabs Banca sold at 25¾ and 26c. English is quoted 23 to 23½c.

The importations for the month were 11 500 slabs Straits, 600 Banca, 600 Billiton, and 32 tons English. From the Straits, Hong Kong, and Japan, 25 to 28 000 slabs are expected.

The stock is estimated at 9 500 slabs Straits,
1,500 " Banca and Billiton,
200 Tons English, equal to 900 "

Total, Boston & N. York, 11,600 slabs, against 26,200 slabs on 1st Feb., 1867
22,600 " " 1866
8 500 " " 1865

The English market declined to 87s. stg. under the expectation of large shipments of Straits. Tin from Japan, but it seems questionable whether more than a few isolated shipments will be made from there either to England or the United States.

SPELTER.—During the last few days 350 tons Stolberg and Silesian were sold at 6¾ to 6¼c. gold. It is now held ¼c. higher. The stock is 550 tons—the importation for January was confined to 25 tons.

COPPER advanced in the first ten days of January 1¼ to 2c. Baltimore was sold at 23c. and Detroit at 23¼ c. The business done was almost exclusively on speculation, and as manufacturers bought but little the price reacted ¾c. Yesterday and to-day there have been additional purchases of 800,0 0 lbs. on speculation, and the quotations of to-day are fully as high as the above-named figures, viz., 24c. for Baltimore, 23 to 23½c. for Portage Lake, and 23¼ to 23½c. for Detroit. The greater part of the stock is held in strong hands on speculation and for investment, mostly bought last summer at high prices, and the transactions to-day are smaller than they would have been if more were offered. At to-day's rate of gold the price is very low, and if the consumption has fallen off, the production here has also decreased and is likely to show a diminution in 1868. The lower rates of labor at Lake Superior will enable the more favored companies to produce copper cheaper than of late years, but a number have stopped work.

The English market showed towards the end of January an improved feeling. The large production of Chili seems to depress the price in Europe, but under the present tariff the condition of the foreign markets does not affect us; in fact we have had for a year past comparatively much lower prices. 25 tons of Minnesota have been bought for export at 18 and 18¼c. gold.

LEAD is 6¾ to 6½c. gold for ordinary foreign. The importations for January amount to 1,700 tons, which went mostly into consumer's hands.

The stock is unchanged from that of the 1st of January, viz., 3,800 tons,

Against 2,000 tons on the 1st of February, 1867.
2,700 " " " 1866.
5,300 " " " 1865.

RUDOLPH C. WINTERHOFF, 66 Beaver street.

Scotch pig iron nominal at $38@39 for Glencarnock. American pig iron steady at $35@36 for No. 1.

AMERICAN
Journal of Mining.

WESTERN & COMPANY, PROPRIETORS.

R. W. RAYMOND, EDITOR.

OFFICE, 41 PINE ST., NEW YORK.

EDITORIAL ROOMS, 37 PARK ROW.

By publishing contributions, the JOURNAL OF MINING does not necessarily endorse the positions assumed by contributors.

Published Every Saturday Morning.

TERMS.—Subscription, $4 00 per annum, in advance; $2 25 for six months; Single copies Ten Cents. ☞ Specimen copies sent free.

ADVERTISING:

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THE AMERICAN NEWS COMPANY, 121 Nassau street, N. Y
THE NEW YORK NEWS CO., 10 Spruce street, N. Y.

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☞ The American JOURNAL OF MINING has a larger circulation than any other paper of the kind in the United States.

NEW YORK, SATURDAY, FEBRUARY 8.

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NOTICE.

Subscribers receiving their paper in a *blue* wrapper will accept the same as a notification that their subscriptions have expired, and that the journal will be discontinued unless we are otherwise authorized.

LAMPS AND DAMPS.

Our readers will find this week, under the head of "Original Papers," the second of MR. HARDEN'S articles on the ventilation of collieries, containing information and advice of pratical value to miners. These articles are especially timely just now, when the subject of ventilation is attracting so much attention in England, and about to become an important matter in this country. We have thus far been comparatively free from those dreadful catastrophes which have made the past year so terrible in the annals of English coal mining. With the exception of the Midlothian colliery in the Richmond region, we do not at present recall any American mine which has recently been the scene of a serious explosion. This comparative immunity is partly due to the system of coal-mining in vogue among us, which, favored by the topography of our coal-deposits, makes considerable use of adits, and, by the connection of these with shafts, establishes the best kind of natural ventilation—that which takes place when the two openings of a mine are at different elevations. Again, we have not yet reached the enormous depth attained by so many of the English mines, and in shallow mines, ventilation is easier, while the generation and accumulation of noxious vapors and gases are generally less voluminous. Finally, our deep and large mines are mainly anthracitic, and therefore less liable to contain fiery gases in dangerous quantities.

On the other hand, the rapid development of our bituminous coal-fields and the great production and increasing depth of our anthracite mines are fast bringing us face to face with the question of ventilation; and, unless our miners are thoroughly prepared beforehand to deal intelligently with difficulty, before it is transformed to danger, we shall be startled from the indifference with which we watch the eager discussions of the English engineers, by hearing in our own land the echoes of the awful disasters which have aroused our brethren beyond the sea.

Nothing particularly new has been brought out by the lively debates of the last few months, in England, on this subject; but a good deal that is old, and had been unfortunately forgotten, has been revived, not, we may hope, without good effect. Foremost among the lessons drawn from the colliery explosions and the scientific experiments of last year, is a renewed recognition of the true value of the safety-lamp. The London *Colliery Guardian*, in an able editorial on this point, shows clearly that "DAVY was perfectly well aware that his lamp was not a safe one when exposed to any strong currents of æriform fluids in an explosive atmosphere. In presence of Lord DURHAM and others, he demonstrated this danger in the lamp by an experiment in the Merton west pit. At this place a blower of gas from a fissure in the stone of the shaft had long been discharging itself through a small tube at the top of the pit. By means of a water-engine, hose, and a jet pipe, a stream of this gas was forced across the room of the engine-house. BUDDLE, in his evidence of 1835, says, 'I well recollect the pipe was held at the entrance of the engine-house, and the jet passed the explosion nearly to the far end of the room, for it was very powerful; the distance that the blower fired the lamp was from nine to twelve feet, I should think. I held the lamp in the direction of the jet. Not having seen it before, I was not very apprehensive of its firing. It did not at first; but as I approached the end of the nozzle pipe, the gauze became heated red-hot and passed the explosion; the flame was as long or longer than the breadth of the engine-house; I remember that it burnt the nap of my great coat, and spoiled it.' 'Now, gentlemen,' said Sir H. DAVY, 'you see the nature of the danger to which you are exposed in using the lamp, and I caution you to guard against it in the manner I have shown you. This shows the only case in which the lamp will explode, and I caution and warn you not to use it in any such case when you can avoid it, without using the shield.'"

Fifty years of the benefits of the safety-lamp have blinded the eyes of many to its real nature and the extent of the protection it affords; so that, at this late day, men are surprised to re-discover that which the illustrious inventor foresaw, and made the theme of warning. One cause has contributed to bring about this result, to which little allusion has been made. We refer to the representations made by rival manufacturers concerning the security afforded by their respective lamps. Each successive inventor points out the sole defect in the preceding style of lamp, only to show that this is obviated by the improvement he has made. The books encourage this feeling, by pronouncing some lamps perfect. DADDON and BRANNAN say, for instance, doubtless following some English authority, "The Stephenson lamp is, therefore, *a perfectly safe one*, and not liable to the objections offered against the use of these lamps in the preceding pages, because it will not burn in a dangerous or explosive element."

It is true that the Stephenson lamp is the safest of the safety-lamps, and doubtless it would be exclusively used, but for its small emission of light. According to the authority last quoted, Mr. T. Y. HALL and others have improved the same principle, until their lamps emit more light than even the CLANNY or the DAVY, and are yet so constructed that they will not burn in a dangerous mixture. This little puff we dismiss at once, as self-convicted nonsense. However good these lamps may be, they cannot be on the same principle as the "GEORDIE," for the safety of that lamp depends directly upon the small amount of air admitted to the flame; and this limits the amount of light emitted.

In view of these facts, it is not wonderful, though lamentable, that a general reliance upon the safety lamp should have bred throughout Great Britain a certain lax administration of other means of protection. Worst of all, the safety-lamp itself came to be used with a sort of superstitious carelessness, as though it were a sort of amulet, which, though battered, neglected and rudely handled, would still retain its charm of power. The experiments made near Barnsley last autumn, have effectually dispelled this illusion by showing that not one of the lamps in use—not even the STEPHENSON—is perfectly safe. The presence of olefiant gas (which Prof. BISCHOF, of Bonn, has proved to be a frequent companion of fire-damp) is enough to explode any one of them. The "GEORDIE" will not always be extinguished in an explosive mixture; for it is not put out by the explosion inside, as Mr. HARDEN says, but by the lack of oxygen in the foul gases. In a mixture of fire-damp only with air, the lamp will usually (if in good order) go out, because the small supply of the gases conducted to the flame does not contain enough oxygen to support the combustion of the oil, while the combustion of the gases themselves (partial or complete) does not raise the wire gauze above the red heat, and thus does not extend beyond the small amount of gas first filling the lamp. Olefiant gas, however, only requires a red heat for its ignition; and the presence of this may explode the STEPHENSON, while, on the other hand, a strong current of ordinary fiery gases, or, what is the same thing, a rapid movement of the lamp itself in such gases, might overcome the safeguard which is ordinarily found sufficient. In the case narrated by Mr. HARDEN, where the self-extinguishing STEPHENSON saved the lives of many workmen, we are inclined to think that less gas with more air, would have put the lamps to a far severer test.

It is evident, as Mr. HARDEN says, that no safety-lamp can be a substitute for effective ventilation; and it is also most plain that the severest discipline must be enforced in the use of lamps in fiery mines. The best lamp in the hands of a careless or ignorant man, or the most careful man with a broken or imperfect lamp, will be worse than nothing, as a protection. "Better no bridge than a rotten one," says the proverb. We shall return to this subject of discipline next week; for it is intimately connected with other things in mining besides the safety-lamp;—for instance, the growing use of nitro-glycerine.

CONCERNING A DICTIONARY.

Who, that ever read it, has forgotten the irresistably funny description of the career of a dictionary, which MARK TWAIN puts into the mouth of one COON, "a nice, bald-headed man at the hotel in Angel's Camp," in the Big Tree region of Calaveras county, California. It was to a request for the loan of a book to enliven a rainy day, that COON replied:

"Well, I've got a mighty responsible old Webster Unabridged, what there is left of it, but they started her sloshing around and sloshing around and sloshing around the camp before ever I got a chance to read her myself: and next she went to Murphy's, and from there she went to Jackass Gulch, and now she's gone to San Andreas, and I don't expect I'll ever see that book again. But what makes me mad is, that for all they're so handy about keeping her sashshaying around from shanty to shanty, and from camp to camp, none of 'em's ever got a good word for her. Now, Coddington had her a week, and she was too many for *him*—he couldn't spell the words; he tackled some of them regular busters, tow'rd the middle, you know, and they throwed him. Next, Dyer, *he* tried her a jolt, but he couldn't *pronounce* 'em—Dyer can hunt quail or play seven-up as well as any man, understand, but he can't *pronounce* worth a cuss; he used to worry along well enough, though, till he'd flush one of them rattlers with a clatter of syllables as long as a string of sluice-boxes, and then he'd lose his grip and throw up his hand. And so, finally, Dick Stoker harnessed her, up there at his cabin, and sweated over her, and cussed over her, and rastled with her for as much as three weeks, night and day, till he got as far as R, and then passed her over to 'Lige Pickerell, and said she was the all-firedest dryest reading that ever *he* struck."

One can see, with half an eye, that the troublesome, tough o'd dictionary that wrung from the dogged STOKER such an acknowledgement of defeat, was not the last, new, ornamental, pictorial, "get the best" edition. The three thousand illustrations in that excellent and "hefty" work are sufficient to tide the reader over the hard words, and give him clear sailing from title-page to colophon. We could find in the new Unabridged very good company for a rainy day. Certainly one should not complain, either as to quality or quantity, of a volume which contains nearly all the English that ever was written, and a great part of all that ever will be. Shakspeare is all there, in somewhat scattered form; Dr. Johnson is voluminously represented; Milton, resolved into his original elements, appears on every page; and there is a salutary sprinkling from the Scriptures, all the way from A to Z. One has only to select the words and make a literature, scientific or poetic, sacred or profane, to suit himself. Everything is to be found, except the word *unabridged*, which is not in the dictionary, because it is on the back, outside. As for the definition, the whole volume is a huge definition of the term.

But a truce to this sportive strain. It is at once easy and cruel to make fun of a dictionary. It is a patient victim; but its turn comes at last; and wo to the unfortunate wretch whose spelling or style is condemned by its ponderous verdict. Webster Unabridged as an argument, if it falls on a man, pulverizes him. Each definition comes with the great army of 114,000 other definitions behind it, to give it authority; and as for spelling, since the appearance of this adipose and venerable arbiter, it can no longer be as it was in the good old days, when "every gentleman had his own."

We began this article with the intention of recommending to the mining community the perusal and constant use of a dictionary. Our motive is a selfish one: if the numerous gentlemen who furnish us with narratives of mining progress, or descriptions of new processes, or discussions of various questions arising in their business, would only take pains to spell correctly, and use words in their proper sense, we should be delivered from much vexatious labor. We do not refer, by any means, to ignorant and uneducated men. Every editor knows that there are but few, even among educated persons, who can write correctly for the press. The editor and proof-reader exercise their duty of revision without much reverence, even for great names. But a writer is shorn of half his strength whose work must be hastily licked into shape for him by strangers.

It is especially fortunate that the new edition of Webster is so nearly perfect in its definitions of geological, mineralogical, mechanical and mining terms. In all ordinary cases, it may serve as authority for the meaning, even of professional words. The reputation of Profs. DANA and LYMAN, who had this part of the work in charge, is a guaranty of the fidelity and intelligence with which it was performed. We have noticed but one exception to the general correctness in this department, and that is the definition given to the word *stulm*—"a shaft to drain a mine." A stulm is not a shaft, and we do not believe the word is or was ever used in that sense. A stulm (synonomous with the German *Stollen*) is a drainage-level, and, in most cases, an adit. "A shaft to drain a mine" would be a queer thing, but it would not be a stulm. We mention this point, because it is the only definition of a mining term with which we have any fault to find. In general, they are peculiarly apt and pithy.

THE PRODUCTION OF BULLION IN 1867.

The San Francisco *Commercial Herald and Market Review* of the 11th ult. contains a long review of mining in the Pacific States and Territories for the year 1867. The estimates of the production of bullion differ considerably from those which we gave in our annual mining review, some weeks ago, and, regarding the *Herald* as respectable authority, we place its figures side by side with our own, merely remarking that the former are avowedly liberal, while ours were carefully kept within rather than beyond the truth. In the case of Idaho and Montana, the real production probably lies som e

where between the two estimates, though we are still inclined to believe it nearer to our extreme than the other. Perhaps COL. MCCLURE, or some other intelligent and trustworthy journalist, with better opportunities for arriving at the truth than ours, will make public, not a mere guess, but a careful opinion, together with the grounds on which it is based. The *Herald's* figures are as follows:

PRODUCTION OF BULLION IN 1867.

	S. F. Herald.	Am. Jour. of Mining.
California	$27,000,000	$25,000,000
Nevada	18,000,000	20,000,000
Arizona	300,000	No estimate.
Oregon	4,000,000	" "
Washington	1,000,000	" "
Idaho	10,000,000	6,000,000
Montana	19,000.000	12,000,000
Colorado	No estimate.	2,500,000
Utah	" "	No estimate.
New Mexico	" "	" "

Colorado is not mentioned by the *Herald*, being mainly east of the Rocky Mountains, and so not included in that vast region humorously denominated "the Pacific Coast." The production of Montana is set down as "nearly double that of Idaho;" we have therefore put it at $19,000,000.

Adding to the *Herald's* figures our own estimate for Colorado, we have a total of nearly $82,000,000, which we cannot help thinking far higher than the facts indicate. The actual production of 1866 was about $83,000,000; and the evidence from all quarters (with the exception of one or two favored districts) is unanimous that there has been a marked decrease. We are inclined to adhere to $75,000,000, the amount mentioned by the Secretary of the Treasury, as a fair estimate; and we think the *Herald* should reduce its figures, especially for Idaho and Montana, so as to bring the sum total within this limit. We do not impeach the intelligence and thoroughness of our cotemporary by this suggestion; for a great part of the bullion from those Territories is sent by the Missouri River or the overland route directly to the East, so that a San Francisco paper could only gather the amount from common report. The *Herald* says the prospects of Idaho in the department of quartz mines and milling are considered much the best. However this may be, the various kinds of mining known as "gulch," "placer," "hydraulic," and "flume" mining, with the usual apparatus, from the "pan," "rocker," "long tom" and hose to the huge ditch and the "bed-rock flume," seem to have done pretty well in Montana. A report now before us, by W. S. KEYES, M. E., estimates the total yield of "Last Chance Gulch," near the city of Helena, at $6,000,000.

SENSIBLE ADVICE.

The proceedings of the Farmers' Club of the American Institute, reported in the N. Y. Semi-Weekly *Tribune*, of Jan. 31st., contain the following:

MINING.—Eli Woods, Richfield, Summit county, Ohio.—I have made up my mind to try the mining region, and see what luck I shall have. I may miss it, but I am a young man, and believe in breaking out. Can the Club tell me what is the best place to go to.

ANSWER.—"Mining" is very indefinite. There are coal, iron, copper, lead, gold, silver, and other mines in different parts of the West and South, though we suppose he means the Rocky Mountain region. This is a wide subject, and we have no space, even if we had the facts, for the information. He had better send for the back numbers of the AMERICAN JOURNAL OF MINING, printed in this city, at No. 37 Park-row, and also take it this year, and by the time the year closes he will be able to form an opinion for himself. He will find out, too, all about the details of mining, difficult to obtain from any other sources.

We entirely concur in this wise counsel, and take this occasion to say that the fourth volume of the AMERICAN JOURNAL OF MINING, handsomely bound, with index and title-page, is for sale at $4. The value of our back volumes increases very rapidly, as the supply grows smaller. The following table will show how the price has already advanced:

VOL.	SUBSCRIPTION PRICE.	PRESENT PRICE.
I.	$2.25	$25
II	2.25	10
III. (14 Nos.)	1.20	3
IV.	2.25	4

The binding (half morocco, gilt lettered and tooled) is included in the present prices above given; but deducting that, there still remains an increase of nearly a thousand per cent. in two years. Those who wish to buy back numbers should make haste.

NEW PUBLICATIONS.

NEW MEXICO: *Her Resources; Her Necessities for Railroad Communication with the Atlantic and Pacific States; Her Great Future.* By CHARLES P. CLEVER, *Delegate from New Mexico.* Washington. 1868.

This neat pamphlet of about fifty pages is put forth by the delegate from New Mexico in Congress, as a general reply to numerous inquiries addressed to him concerning that Territory and its resources. As one might naturally expect, Mr. CLEVER presents a very favorable picture of the climate, soil, topography, agricultural and mineral resources of the region in which he is interested; and we have no reason to believe that the picture is overdrawn, though there is, perhaps, a slight lack of shadow. The fact is however clearly admitted that railroad communication is a *sine qua non*, which must precede any great advance in the development of this fruitful land. The argument of the treatise before us is directed, not so much to the persuasion of capitalists to invest in the lands and mines of New Mexico, as to the presentation of the claims of the Territory to such favoring legislation as will ensure its speedy opening to travel, enterprise and trade. The matter is put in a nutshell, thus:

The prospector has now found his mine, and has got his title to it. It may yield at the rate of twenty, thirty, forty, fifty, eighty, or more dollars to the ton, and be inexhaustible in extent. He is a rich man, one might suppose. Not so; he is still poor, and has to go off somewhere and labor even for his daily bread. Now, the example here given is that of hundreds of miners who have found hundreds of mines they *know* to be good. It takes *capital* to buy and bring machinery to crush this quartz and save the gold. But why do not people with capital do this? Because, as yet, the country is not made accessibe by railroad. Wealthy men will not make the journey unless they can travel rapidly and with ease and security; and the poor miner, like the Puebla Indian, who turns to the east every morning, hoping to see, coming thence, the divine form of Montezuma, so does he turn his eyes in the same direction, and pray for the day when the rich man with his money will come to be a partner with the poor man with his mine.

LES MINES D'OR *de la Nouvelle Ecosse. Revue Statistique.* This is another of the numerous *brochures* which were set flying in flocks by the Paris Exposition. We noticed last year the excellent statistical tables of "Cosmopolite," the Nova Scotian correspondent of the New York *Times*, identical with Mr. A. HEATHERINGTON, of Halifax, editor of the *Mining Gazette*. The pamphlet before us is a polyglot edition of the same matter, containing in parallel columns the French, German, Spanish and English text.

LAST CHANCE BED-ROCK FLUME; *Showing its Practicability from Actual Surveys by* CAPT. W. W. DELACY; *by* W. S. KEYES, M. E. This report, originally published in the *Rocky Mountain Gazette*, and now issued in separate form at Helena, Montana, is intended to point out the great profit to be expected from the construction of a bed-rock flume in the celebrated Last Chance gulch, near that city. The advantages of the plan are clearly set forth, and its feasibility, from an engineering standpoint, apparently proved; but we look in vain for any statement as to the cost of construction. In countries like Montana, where millions of dollars "lie around loose," waiting to be picked up, it may be possible to overlook such a trifling item; but in this part of the world, it is still a matter for serious consideration, how much a proposed enterprise will cost, before it begins to pay. In the absence of such information, we have nothing left but our confidence in Mr. KEYES' reputation as an engineer, and his estimates of "net profits."

REPORT *of the County Assessor and County Surveyor of Humboldt County, Nevada.* This pamphlet contains some important data concerning the condition of mining operations in Humboldt county. In our mining summary will be found an interesting account of the Montezuma mine and its smelting-works at Oreana, extracted from this report. Concerning the Blackrock mine, and the operations of Mr. ISENBECK, on whom a good deal of attention is still fixed, the Assessor and Surveyor are prudently reticent.

THE PULPIT began its second volume with a number of considerable interest, variety and value, containing, besides vigorous and sensible editorial matter, the following addresses: The Liberty of Preaching (sermon), by Rev. STEPHEN H. TYING, Jr., N. Y.; the Epistle to the Ephesians, by the Dean of Canterbury; WHIPPLE'S beautiful eulogy of Gov. ANDREW; a remarkable specimen of fervid eloquence from the speech of the young VICOMTE HELION DE BARREME, at the Catholic Congress of Malines; and addresses by THOLUCK on church unity, Bishop SIMPSON on lay preaching, Mrs. STANTON on woman's suffrage, and LEWIS DOWNING, Chief of the Cherokees (successor to John Ross), on the condition and prospects of that nation. We shall notice the February number of this valuable and unique periodical next week; and, meanwhile, we would suggest to the editor that extracts from one of TYNDALL'S admirable lectures, or from some clear and cogent speech, like that of Senator STEWART on the National School of Mines, would add to the already great variety of the journal, and furnish at the same time samples of the characteristic eloquence of this present time—the eloquence of plain straightforward talk.

The New York office of the *Pulpit* is at 37 Park Row.

THE HERALD OF HEALTH for February contains the article by Mrs. E. OAKES SMITH, about which so much is said in the papers, on "Choosing a Husband." Mrs. S. claims that women should have the right to choose husbands as freely as men choose wives. We do not see what good this plan can effect, unless men are forbidden to refuse. On any other system, a woman could gain nothing by "proposing;" if the man wanted to marry her, he would ask her; if he did not, he would tell her so when she asked him. In our humble opinion, the cases are very rare, in which two persons are anxious to be married to each other, and never come to any understanding; and, where a woman loves without return, it is better for her, and for everybody else, that she should say very little about it, unless perhaps in the poet's corner of the village paper, over the signature of SAPPHO. Meanwhile, in spite of all reformers, the fair sex will doubtless pursue that policy which has been found by the experience of centuries to lead to the greatest average amount of matrimony.

THE PUBLIC SPIRIT for February (American News Company, Agents) is lively and agreeable. There is a good story in it of Widow Brown's Oil Well, which relates how the said widow, by judiciously salting her farm with indications of petroleum, brought the rich squire to propose, first purchase and then matrimony, after the consummation of which latter bargain, the oil gave out. This reminds us of a story told, we believe, by a distinguished chemist of Boston, as occurring in his own experience. A sharp Yankee from the country entered his office one day, and holding out a handful of glittering mineral, said triumphantly, "What do you think of that! What should you calculate now, that that 'ere was worth?" "I should calculate, sir," responded Scientificus, "that it is common iron pyrites, and worth nothing at all." To whom Rusticus, with eyes at once dilated and diluted: "By thunder! I've jest been and married a widder in our town that has got a mountain o' that stuff on her farm!"

THE AMERICAN NATURALIST for February is as good as usual, which is high praise. The contents include a capital article (the first of a series) from C. FRED. HARTT, A.M., entitled "A Vacation Trip to Brazil."

Correspondence.

[To insure insertion of correspondence in our columns, the full name and address of the writer must be given.]

The Proximate Analysis of Coals.

EDITOR AMERICAN JOURNAL OF MINING:

IOWA CITY, January 24, 1868.

In an editorial, while praising the fullness of my description and the thoroughness of my experiments, you ask, at the same time, several direct or indirect questions: Please publish the following few words as a reply.

When the coal is well pulverized and heated, in the manner explained in my paper, the evolution of the gases is very regular, requiring no extra pressure on the cover, even with the fattest coals that have been analyzed by me. Good, *well-kept* platinum crucibles fit tight enough.

I did not give any acute speculations in regard to the slow oxidation of the coal, but gave a considerable number of experiments in detail, proving this increase in weight. If there were such rapid oxidation as you seem to think possible, I believe my experiments would have shown it; the facts I gave seem to warrant the conclusion stated at the time, and a mere possibility, not resting on any definite experimental probability, will hardly destroy the conclusion referred to.

The special method of heating was adopted as the result of the experiments reported, which experiments prove that the particular mode of heating gives the most constant results, while, at the same time, it was experimentally proved, that by varying the circumstances, the results did vary about twenty per cent. That the coke by protracted heating does waste, was proved in two series of experiments, extending to a heating of half an hour, or repeated heating of some fifteen times, I trust you will perceive that proximate analysis, allowing it so great range in the result according to the circumstances of the method, can only be comparable by being executed according to some fixed method; not knowing of experiments proving what method does give the most concordant results. I instituted such experimental investigation, and the result arrived at will hardly be considered useless.

That others have set forth the importance of the ratios between the volatile matters and the carbon, I have no doubt, but nevertheless I think I have proved that *coals must be compared by taking the combustible*=100. Even the mere importance referred to I hardly can consider familiar to most chemists; if it were otherwise, Prof. WHITNEY'S analyses of 1860 for Iowa, and Dr. BLANEY'S analyses of 1866 for Illinois would not be silent on this point, for these two gentlemen are not only chemists, but very eminent chemists.

GUSTAVUS HINRICHS.

Spiegeleisen in America.

NEW YORK, February 6, 1868.

EDITOR AMERICAN JOURNAL OF MINING.

Spiegeleisen, or iron containing the proportion of manganese necessary in the process of making Bessemer steel, is now being imported from Germany, and is worth in this market fifty-three dollars gold per ton, the supply being limited. An article quite equal to that imported, is now being introduced in this market from Tennessee. The ore from which this metal is made is found in the Cumberland range near Greenville, East Tennessee, not far from the Virginia and North Carolina line. The mountain that contains the one is dome-shaped, and the ore is found at its very top in one vast deposit, requiring but little labor to extract it. Two men and a boy mine or quarry an average of twenty tons per day, besides doing the other work of the mine. The ore is a limonite or brown hematite, with a large admixture of manganese, and free from any contaminating impurities. Careful analyses have been made by Professor Egleston and others, and it is found to be exceedingly pure, with a laminated or crystalline structure, presenting an appearance, in broken pig, like that of new silver. This appearance is caused by its mixture with manganese of which it contains a large percentage. The uses to which this iron has been successfully applied include the manufacture of a fine quality of merchant iron, also its application as a mixture for fine castings, such as car wheels, safes, bells, quartz-crushers, &c. Recently it has been used as a recarbonizer in the manufacture of Bessemer steel, and is now imported from Prussia for that purpose. It is also used as a mixture to improve the quality of badly made irons, whether anthracite or charcoal, when too much decarbonized or "burnt." The manufacturers of steel from the bar have high expectations of finding it one of the purest and best adapted irons for their purposes. Joseph R. Anderson, Esq., of the Tredegar iron works at Richmond, who was filling an order for one hundred tons to be put in puddle bar for a celebrated Sheffield steel maker now at Philadelphia, writes: "He cannot help but be pleased with the sample, for after an experience of twenty-five years, I have never puddled an iron equal to it." Mr. Anderson, it is well known, has been accustomed to the finest irons in this country. Mr. Lilly, of safe notoriety, has pronounced it one of the best irons introduced into use in this country. It has been extensively used at Knoxville, Tennessee, for piling on the outside of railroad scrap and in this way making a merchant iron of superior quality. The general want of knowledge of the practical working of manganese iron in this country, and of the uses to which it can be advantageously applied, renders the introduction of this new material a matter of delay and difficulty. When our manufacturers of iron become better informed in these respects, it will be as much sought for, and as freely used, as it is now in Germany and England.

EDWIN HENRY,
164 Maiden Lane, New York

Sulphur in Popocatapetl.

SCRANTON, PA., Feb. 4, 1868.

EDITOR AMERICAN JOURNAL OF MINING:

As I see by your article of Feb. 1st, you doubt the possibility of extracting sulphur from the crater of Popocatapetl or at least think that it could only be done by one actuated by the spirit of the Spanish conquerors, as a proof of daring rather than through economic motives, I beg leave to make some statements, which, however, I wish to be distinctly understood as from recollection, since I have no books or papers regarding them to refer to, and my business not having had any connection with this subject, I have known of it but incidentally. I have read accounts of ascents of this mountain by Mexicans for pleasure. It is not remarkably precipitous, and the line of perpetual snow could be, I believe, reached on horseback. You must remember, when comparing its height with that of Mont Blanc, that the former is in latitude 19° while the latter is 46°, and that consequently the snow-line is at an elevation of 15,000 ft., and 8,000 ft. respectively,—the actual height of Mont Blanc being 15,743 ft. and of Popocatapetl 17,720 ft. above the sea. Now, in one of the accounts I read, the narrators mention having slept in a hut on the summit, made by the Indians who carry the sulphur on their backs from the crater down to a point some thousands of feet below, from which pack mules can carry it to the plain. The difficulty of this operation will not appear so great when you consider that the mountain rises from the table land of Mexico, itself some 8000ft. above the sea, and that the sloping base of the mountain makes the ascent easy to a height of some 11,000 ft. or 12,000 ft. Again, to one who knows the miserable pittance that affords a competence to the Indian in the neighborhood of the capital, it will not be surprising that he should brave the passage of 3,000 ft. of snow for the money

the sulphur may procure him. I have not heard of any other locality in the environs of the city of Mexico which affords sulphur, though there may be such. I dare say it is much easier to reach the summit now than in the time of the conquest, as the charcoal burners have made or found tracks not available at that time. The Indians of that day had probably superstitious fears of ascending a part from which the sulphur would have been useless to them. I read a series of articles published in the Mexican papers by a civil engineer named, I think, ORTIZ, who recommended a tramway or other means of facilitating the transportation of the sulphur down the side of the mountain. He made, I believe, several ascents, but nothing came of his proposals.

DAVID COGHLAN.

Manufacturing and Mechanical Notes.

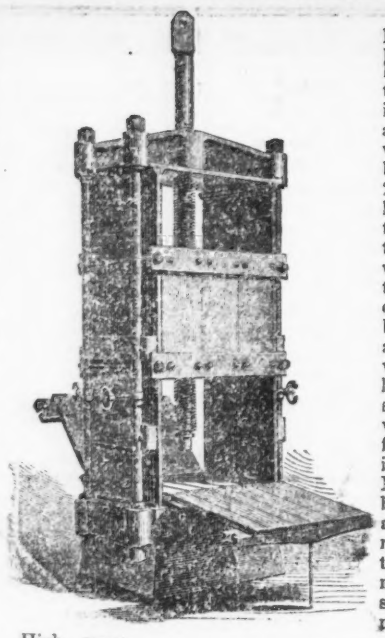
No. 5.

The Novelty Iron Works.

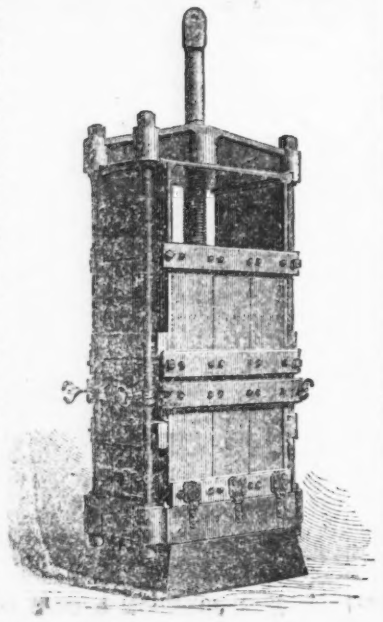
Whoever visits this old and extensive establishment will find much to interest and please, as there are no works in this country that have a wider reputation, and no establishments which turn out a greater amount of miscellaneous machinery. Some of the largest and finest iron structures on this side of the Atlantic have been constructed at these works, including iron vessels, marine, stationary and locomotive steam engines, boilers, tanks, sugar-cane mills, turbine water wheels, movable and stationary cranes, hoisting gear, hydraulic oil and cotton presses; besides a vast amount of mill work, as pulleys, fly-wheels, racks, ratchets, pillow blocks, spur and bevel gearing, &c. The first impression an observer receives on visiting the premises is, that there are great and numerous facilities for building the heaviest kind of iron work. For instance, if we step into the foundry where all the iron castings are made we find a lofty building, 194 feet by 130 feet, containing seven large powerful cranes and four cupolas. The largest casting ever poured here was the bed plate for the engines of the steamship Baltic; this weighed some 65 tons, and was lifted from the sand by means of hydraulic jacks. The largest molding at present is for a condenser to weigh about 30 tons. It is here also that large cylinders up to 105 inches diameter, for marine engines, are cast; some fine *working specimens* of this class can be seen in the steamships Baltic, Adriatic and Arizona; also in the new steamers Japan and Alaska, belonging to the Pacific Mail Steamship Company. We were much pleased to observe that the pattern shops were in close proximity to the foundry—a good arrangement for obvious reasons, and that the thousands of large and small patterns were kept systematically arranged, in good condition, ready for use when required. If proprietors of machine shops would always appoint a competent man, as employed here, to collect, clean, repair and arrange patterns when no longer needed in the iron and brass foundries, they would have less time and money wasted in looking up patterns and getting them fit for use when wanted. The manufacture of weighing scales is one of the most important branches of business at the Novelty Iron Works. From the largest to the smallest kinds of scales are made that will weigh from ¼ ounce up to 450 tons. The different sorts are weighlock, railroad, hay, coal, cattle, miners, warehouse, platform, grocers,' counter and druggists' scales. A large number of men are constantly employed in this scale department. The fitting-up shop is about 150 feet by 60 feet, and there are two floors, 100 feet by 30 feet, where the scales are adjusted, painted, boxed and stored. Large numbers of Sampson's patent scales are manufactured here in a superior manner and of the best materials.

Another department at these works is arranged for making soda water apparatus on an improved plan. A complete and finished working apparatus is kept on exhibition; in this the improvements are seen and an excellent draught of pure soda water can be obtained as a test of their efficiency. Carbonic acid gas is first obtained in a cylindrical copper generator by pouring sulphuric acid upon a quantity of marble dust; the gas is then passed through four copper filterers filled with water in order to purify it; from thence it passes to a gasometer made much in the usual manner; from this gasometer it is pumped into two strong cylinders bearing a very heavy pressure. Small portable tanks are filled from one of these cylinders and the former are then attached to the drawing-off apparatus; the carbonic acid gas being quickly absorbed by water and mechanically entangled between the particles of the liquid we get as a result sparkling and cooling soda water. All our common soda and Seltzer waters are charged with carbonic acid by means of forcing pumps. We may here remark as a striking instance of the various properties of gasses and their several adaptations to our convenience and comfort that carbonic acid gas, though perfectly irrespirable, poisonous and destructive to life when taken into the lungs, may with impunity be taken into the stomach, where it produces no other effect than an agreeable coolness, which is perfectly healthy. There are some departments on these premises that our space will merely allow us to mention as a brass foundry of good size; a copper shop 94 feet by 52 feet, where two large ventilators were being made for the Messrs. Brown, building 59 and 61 Wall street, in this city; a bucket shop, where new, not "old oaken buckets" are made for steamships and fire purposes; a paint shop; a blacksmiths shop with 18 fires and 4 trip hammers; rooms for belting, and rooms for hydraulic clothes washers, which by the way we noticed were H. E. Smith's patents, and other minor compartments. The large and lofty boiler shop is worthy of remark as being exceedingly well fitted up and adapted for boiler making. The punches and shears were arranged close along one side of the building with spaces between each, thus giving a large and open area for the construction of boilers. The flange and blacksmith's fires were at one end. A set of tubular boilers in nests of four are now in course of erection for the steamers Japan and Alaska. They are 24 feet long in front, 11 feet 6 inches deep, by 12 feet high, and contain 600 tubes, 3 inches diameter by 7 feet long, with a total fire surface of 4,164 square feet. The products of combustion will pass from furnaces in the nest of four boilers up to a smoke-pipe 10 feet in diameter.

There are a variety of hydraulic presses manufactured at these works, some for oil and others for cotton. The former are used for extracting oil from cotton or flax seed, the latter for compressing bales for shipping.



The accompanying cuts represent a No. 1 hand screw cotton press. It is very strong and durable, and will turn out bales 2 feet by 2 feet by 3 feet long of a density of 20 lbs. to to the cubic foot with the labor of two men, from eight to ten bales per hour and a shipping weight of 500 lbs. These presses are made with special reference to Spanish America and Mexico, where bales of the above size are required, but they can also be made of other sizes as parties may order.

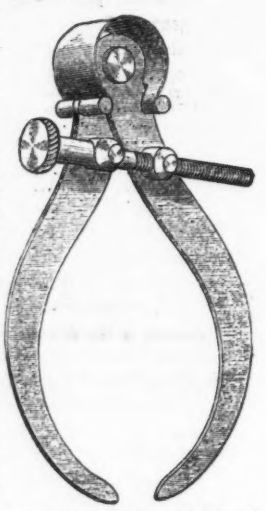


High pressure steam stationery engines are constantly wanted in all parts of the country and are particularly adapted for manufacturing purposes, mills and plantations. The proprietors of the Novelty Iron Works have turned their attention to building first class horizontal high pressure engines, and have determined to produce engines that shall be strong, economical, and neat in design. They propose to place upon these engines some of the best improvements known to mechanical engineers, so that they shall compare favorably with the most economical and finest finished engines in this country. On a drawing of these horizontal engines designed for one with 15 inch cylinder by 42 inches stroke we observed that in order to allow for expansion, the cylinder was not bolted to any part of the frame, but was supported at one end by a neat cylindrical iron column, and at the other, by having the cylinder cover cast in with the frame and bolted to the cylinder. The middle of the frame immediately under the cross head slides is made the strongest part of the frame which is all cast in one piece. The boxes in the crank shaft pillow block are placed at an angle of 30° so as to obtain a better bearing and wearing surface for the journals. The steam chest and valves are placed at the side of the cylinder, and the cut-off valves are connected with a centrifugal governor. These engines are to be made from five to two hundred and fifty horses power, and the size of cylinders will vary from 5 inches by 18 inches stroke to 24 inches by 54 inches stroke.

There are some 800 hands at these works, but many more can be employed when business demands them. The works are situated at the foot of East 12th, 13th and 14th streets, and for the convenience of their patrons the company have a branch office at 111 Broadway, New York city. We need scarcely add that the energy and engineering ability of Mr. Horatio Allen, the President of the company, whose reputation is so well known, are ample guarantees for ingenious mechanism and superior workmanship.

Improved Callipers.

Straight edges, squares, and callipers, have always been the mechanic's companions and assistants in the manipulation of materials. They are his great helps in the construction of mechanical details and erection of works, whether they consist of stone, wood, or iron. Every mechanic knows (or ought to know) that the beauty and efficiency of all artifice increases in proportion as parts approach geometrical accuracy; these hand tools, therefore, which enable him to make his work straight, parallel, square, or circular, are seldom out of his hands,—in fact, they are indispensable adjuncts to the vise, lathe, and planer, and are to be found on almost every workbench, and in every workman's tool-chest. The straight-edge and square are, of course, only applicable in obtaining plane surfaces and right angles, but callipers are more especially useful in ascertaining the parallelism of surfaces, the diameter and thickness of bodies. There are different sorts, known as outside and inside callipers, or in other words, callipers which will measure outside and inside diameters. These commonly have their fingers made of flat steel, and when designed for taking outside dimensions are made in a semi-circular form, so that the points only shall touch in gauging the work. The inside callipers are made straight, and in shop parlance are known as "leg callipers." The common method in constructing these has been to file the two pieces together, so as to get them exactly alike, and then, after finishing, to rivet them together with a round-headed rivet and washer, to such a degree as to allow opening and closing with a moderate degree of pressure. To get an exact measurement with these, the mechanic has to keep tapping one edge until the points are sufficiently closed to take in the diameter or thickness of the object. There are some objections to this description of callipers, as they spring, and can only be used with any degree of certainty in the hands of an expert mechanic who knows something of the sense of feeling and touch. Spring callipers are now very much used and liked. These are generally made from square steel, and have a screw passing through them, and a thumb-nut for adjusting the points.



The accompanying illustration represents improved callipers, patented by Lucius W. Pond, of Worcester, Mass., Sept. 24, 1867. It will be observed that they are a combination of the ordinary and spring callipers. Being made of flat steel, and having the screw with a milled head at the side, no springing takes place when gauging a shaft, bolt, pulley, &c. The steel spring is not part of the callipers, but is put round the joint and held by two pins. Should this spring be broken, the callipers can still be used as the ordinary ones, and a new spring attached at leisure. They are exceedingly neat in form, and are made from the smallest to the largest size. As every mechanic, engineer, and machinist appreciates a reliable and well finished pair of callipers, we have no doubt these so well improved by Mr. Pond will find their way into the hands of numerous workmen and experts.

Any further information may be obtained from S. N. Hartwell, at the machinery depot of Lucius W. Pond, No. 85 Liberty street, New York City.

Improved Blast-Furnace.

An improved blast-furnace, extraordinary advantages for which are claimed, has been invented and successfully introduced by Mr. Fritz Lurmann, the chief engineer of the George and Mary Smelting Works, at Osnabruck, Germany; and as it has now been nearly twelve months in use, it may be supposed that the claims are not altogether unfounded In the new furnace the hearth is closed all round, and there is neither tymp, forehearth, nor damstone. The slag stands constantly at the same level, and there is a cast iron slag hole, kept cool with water, and introduced at any point in the circumference of the hearth, the point of introduction being about six or eight inches below the centre of the tuyeres. The slag hole is cylindrical in the centre, and widens towards each end. By the use of the furnace, the stoppage, otherwise necessary for tapping and for cleaning the forehearth is altogether avoided, and this leads to the further advantages that no cooling takes place, and a higher and more regular temperature can be maintained The perfectly closed hearth permits of a greater pressure of blats being used, as the raw material cannot be blown out—this is of special importance where crude coal is employed—and it is claimed that the number of workmen may be reduced by one-third. The orifice through which the iron is drawn off is opposite the slag hole, and, of course, at a lower level. The working of the furnace does not present any difficulty whatever. The slag hole is not closed before tapping the iron, since the slag stops running of itself when the iron begins. After tapping the iron the tap hole is plugged, and during this time the slag hole is stopped with a little sand or earth. The water used in cooling this orifice is reduced to a minimum. The duration of this work is about four or five minutes. The full allowable blast pressure is now applied, until the slag appears at the slag hole, when the sand or earth is removed, and the workman thrusts a round bar through the opening and the slag-crust behind it into the liquid slag, and then quickly withdraws it, when the slag flows out in a stream. The flow of slag may be completely regulated by means of the water, cooling the discharge piece; since by strongly cooling the latter the slag is "frozen" in the passage, reducing the size of the discharge, and *vice versa*. During this entire process the blast is not interrupted, nor the pressure diminished. The size of the slag hole naturally depends upon the probable consistency of the slag which has to pass through it, and varies from one inch to two and a half inches. As old furnaces of the ordinary construction can easily be altered to the new form, there is nothing to prevent the invention being tested in this country, so that it may be hoped, if the advantages are as great as they are claimed to be, their use will at no distant period become general.—*London Mining Journal, Dec.* 14.

Across the Continent in Fifteen Days.

The Union Pacific Railroad has already reduced in point of time the overland journey to California one week. However important this reduction is deemed by those whom business or pleasure prompts to undertake this journey across the Continent, it is of far greater moment to commercial and financial operators. A notable instance of the value of this saving in time, by reason of the railroad facilities which this company have made available, is just announced. Dispatches received here, January 19th, state that the mails from China and Japan, which have heretofore been sent from San Francisco by sea, and which have occupied from twenty-two to twenty-four days in transit from that city to New York, left the former city by the overland route on the 20th Dec., and was due here on January 5 h, only fifteen days from the Pacific coast. Such rapidity of transmission is unprecedented, and the fact that it is now possible is due to the energy which has been manifested by the Union Pacific Railroad Company in the construction of the great national line which that corporation has had in hand. The total time from Japan to New York is now reduced to about forty days, while the Liverpool merchants may receive their advices by this route in nine or ten days more. The industrial armies who are digging and blasting a way for the locomotive through the Rocky Mountains and the Sierra Nevada are working as directly in the interests of New York and European capitalists and merchants as of those personally connected with the railroad companies. In five years hence the wonder will be, not that any parties were audacious enough to project and build a Pacific railroad, but that the business men of this city and of the country were so long content to do without it.—*Protectionist.*

Legrand's System of Permanent Way.

At a meeting of the North of England Institute of Mining Engineers, Mr. Beck attended, and explained in detail the system of

M. A. Legrand, Mons., for making sleepers and chairs for colliery and other rail and tramways. The material used consists of best wrought iron rolled in channel sections, varying in width and in strength according to the weight of carriage to be conveyed along any particular line of rail. Instead of movable chairs, the receptacles for the rails are stamped upon the sleeper by bending up the iron in a suitable form at the proper points. A couple of wooden keys maintain the rails in position. The sleepers can be made to suit any section of rail or any width of permanent way. Being made of channel iron, each sleeper soon fixes itself, and is prevented from moving even under the heaviest traffic. This system is adopted in nearly all the Belgian collieries and mines, and has also been laid down on some of the State railways. One advantage possessed by this system is that when the sleepers are worn out they are still valuable as old iron, the material used being of excellent quality. There are also no nails to get into the horses' feet in the underground tramways, and the simplicity of construction allows the rails to be laid down with great rapidity. The description of Mr. Beck, who is now visiting the English collieries, was very favorably received by the mining engineers present, and the votes of the Association were given to him for his attendance.—*London Colliery Guardian.*

Patent Claims.

Interesting to Miners, Millmen, Metallurgists, Oil-Men and Others.

73,838.—METHOD AND MEANS FOR TREATING ORES OF GOLD AND SILVER.—Louis Edouard Rivot, Paris, France, assignor to Jacques Gaillardon, San Francisco, Cal.

I claim 1st. The roasting of gold and silver ore by superheated steam in the manner as herein described, that is, by separating the ore from the flames by the interposition of cast iron plates, and by superheating the steam in the furnace itself, substantially as shown and set forth.

2d. The reverberating furnace, substantially as herein described, when provided with steam pipes on or about the fire bridge for discharging steam upon the sole, whether such furnace be arranged for burning vegetable or mineral fuel, as set forth.

3d. The arrangement, as herein shown and described, of a double furnace, or of a single furnace with two fire chambers, together with the use of cast iron plates at the level of the fire bridge, to separate the flames from the ore, substantially as set forth.

4th. The arrangement of the furnace herein shown and described, in which superheated steam is made to impunge upon the ore, when separated from the flames of the fire chamber.

5th. The method of amalgamating the roasted ore, without the adoption of any reagents, in apparatus of ordinary or suitable construction, substantially as herein shown and set forth.

73,839.—APPARATUS FOR AMALGAMATING GOLD AND SILVER ORES.—Louis E. Rivot, Paris, France, assignor to Jacques Gaillardon, San Francisco, Cal.

I claim the herein described method of and apparatus for amalgamating auriferous and argentiferous ores.

73,840.—TREATING ORES WITH SUPERHEATED STEAM.—Louis E. Rivot, Paris, France, assignor to Jacques Gaillardon, San Francisco, Cal.

I claim the herein described method of and apparatus for roasting argentiferous and auriferous ores, that is to say, the employment, in connection with superheated steam, of a rotary roasting furnace cylinder, substantially in the manner shown and specified.

73,859.—MANUFACTURE OF REFINED GRAHAMITE.—Henry Wurtz, New York city.

I claim the new chemical preparation or article of manufacture specified and described above, called by me Purified or Refined Grahamite, and obtained by the action of solvents upon the mineral Grahamite, substantially as above set forth.

73,860.—PREPARATION OF GRAHAMITE.—Henry Wurtz, New York city.

I claim 1st. The separation from any impurities with which it may naturally occur commingled, of the mineral substance called by me Grahamite, by the use of a liquid medium or menstruum, substantially as above set forth.

2d. The separation of Grahamite into two distinct substances by the action of solvent media or menstrua, substantially as above set forth.

73,861.—PREPARATIONS FROM GRAHAMITE.—Henry Wurtz, New York city.

I claim the chemical preparation or article of manufacture specified and described above, called by me Beta Resinoid of Grahamite, or Irisine, and consisting of the residue left undissolved in the extraction of Grahamite of the viscosine, whether the said irisine be refined by solution in one of its solvents and evaporation or not, all substantially as set forth.

73,862.—PREPARATION FROM GRAHAMITE CALLED VISCOSINE.—Henry Wurtz, New York city.

I claim the chemical preparation or article of manufacture specified and described above, called by me Alpha Resinoid of Grahamite, or Viscosine, and obtained by the action of solvents upon the mineral Grahamite, substantially as set forth.

73,874.—REDUCING LEAD ORES.—Charles F. Carpenter, Louisville, Kentucky.

I claim the introduction of atmospheric air and steam, together or separately, directly into the space marked B, in a reverberatory furnace, so that they may pass directly between the flame and the ores of lead upon the hearth.

Also, introducing air and steam through the fire bridge, so that they may be intensely heated before acting on said ores, as herein described, or any other method substantially the same.

73,931.—PUDDLING FURNACE.—Henderson Ross, Pittsburg, Pa.

I claim 1st. A water clamp for furnaces, constructed, arranged, and operated substantially as herein described, and for the purpose set forth.

2d. Surrounding the neck or throat with water, substantially as herein described and for the purpose set forth.

Special Scientific Brevities.

☞ M. Richter has published a method of extracting indium from zinc; the rare element occurs in blende. The zinc is dissolved in sulphuric or hydrochloric acid, and the residue, which is composed of zinc, indium, and other metals, is treated with nitric acid. The solution is evaporated with sulphuric acid, diluted, and a current of sulphuretted hydrogen gas passed through. The indium is almost completely precipitated with the cadmium and copper. The precipitate is dissolved in hydrochloric acid, and precipitated by ammonia. By repeating the process several times the whole of the zinc and cadmium is separated. Finally, a small quantity of iron still mixed with the indium is removed by a partial precipitation with ammonia and carbonate of soda. Indium is obtained by reducing the oxide: this may be effected by heating in a current of hydrogen gas, or by the power of a voltaic battery.

☞ In a recent communication to the Chemical Society of London, it was stated that the noxious qualities of ordinary drinking water did not result usually from any mineral substances that might be dissolved in it. Ammonia should not be in appreciable quanity; but lime salts, while causing hardness, do not appear to affect the health. Nitrates too, alone, seem harmless, but when several of these substances occur together, the mixture seems to favor the rapid development of low forms of vegetable life, which are positively injurious. Experiments have been made in supplying pigeons with water containing these vegetable organisms, and it was found that they were purged almost to death; recovering, however, quickly, when the water was changed. The purification of such water either by efficient filtration, or by the precipitation of the organic particles, becomes clearly a necessity, if health is to be preserved.

☞ A German engineer states that oxide of chromium is the best substance for polishing steel. The article can easily be prepared by heating bichromate of potash to redness It is also used for painting on porcelain. One equivalent of chromic acid is reduced to oxide of chromium, and on well washing the residue of the ignition, neutral chromate of potash is washed away, and the ignition is left behind.

☞ Recent experiments conducted by the French Government, show that the water tanks on board a ship should be coated inside with tin, and not with galvanized iron as at present. It was discovered that the water, under certain conditions, dissolved the zinc off the iron, and rendered it injurious to the health.

☞ Mr. Bevan found that when two cylinders of dry ash 1½ inch in diameter were glued together, and after twenty-four hours torn asunder, it required a force of 1,260 lb. for that purpose, and consequently that the force of adhesion was equal to 715 lb. per square inch of surface.

☞ All kinds of soft, porous stone become hard by whitewashing them with fresh-slacked lime. The lime absorbs carbonic acid from the atmosphere, and is converted into carbonic of lime. A portion of this remains in the pores of the stone, and ultimately becomes very hard.

☞ M. Weiderhold made a series of experiments with a view of determining the suitabilities of various substances for the manufacture of lucifer matches. He found that the mixtures composed of chlorate of potash and hyposulphite of lead gave the best results.

On-dit about Minerals, &c.

☞ The net earnings on the ninety-four miles of the Central Pacific Railroad opened for business during 1867—from the wharfs of Sacramento to the summit of the Sierra Nevada—amount to $1,200,000 in gold, or at the rate of a million and a quarter for each hundred miles worked. The estimate for the current year, with an average of two hundred miles open, is placed at $3,000,000, and in the same ratio of increase thereafter, as the road is extended. The results already attained, under the most disadvantageous circumstances, afford substantial grounds for believing the Central Pacific to be the most favored, productive and valuable railroad enterprise in the country. It is believed that the grant of lands of this line will, within a few years, be of immense value. The Company are now offering the first mortgage six per cent. gold bonds, to the same amount of the Government subsidy bonds (averaging $35,000 per mile for seven hundred and twenty-six miles,) at less than their par value, both principal and interest being payable in coin. Messrs. Fisk & Hatch, No. 5 Nassau street, are the general agents for this popular investment.

☞ The *Honoluiu Advertiser* says:—In confirmation of the statement made of the probable existence of coal on the newly-discovered Wrangell's Land, we may add here that Capt. Lewis, of the Corinthian, assures us that coal is found along the shore near Cape Lisburne. He once picked up a bucketful that had been washed by the sea, for ages perhaps; took it on board, and found it answered for fuel as well as the best anthracite. He also found birds resembling the American partridge very abundant there, and a great variety of flowers in full bloom in the month of August. He collected a bouquet of several varieties, which, though beautiful, were generally devoid of much fragrance.

☞ The eruption of Mount Vesuvius is reported by the cable to have terminated in a great catastrophe. The side of the mountain lying opposite to the gate of Castello-Nuovo, one of the fortifications of Naples, situated between the royal palace and the sea, fell, tumbling outward The detached portion buried several houses built in the vicinity, and overwhelmed carriages and other conveyances passing on the highway at the moment, causing considerable loss of life.

☞ The proprietors of the Walla Walla Foundry, in Oregon, are building a pump with a cylinder five feet long by sixteen inches in diameter. It will raise seventy-two thousand gallons of water per hour, which would be an ample supply for a city of two hundred thousand inhabitants. The pump is for a gold mining company working a bar on the Columbia River.

☞ Lithographic stone of excellent quality has been discovered in Indiana.

☞ A rich vein of black marble has been discovered at Fishkill.

All Sorts.

☞ There is every reason to suppose that the great ship canal for the passage of vessels of the largest size, between the Mediterranean and the Red Sea, will be completed next year at the specified time, (October 1, 1869.) An English engineer has given his opinion to that effect. This great work will revolutionize commerce and reduce the distance between Europe and the East more than one-half, with a corresponding diminution of expenses. It will also considerably reduce the distance between New York and the East, although its importance to America will be somewhat diminished by the completion of the Pacific Railroad.

☞ The Paris correspondent of a daily paper writes that the street cars in that city run on flat rails, with wheels without flanges, the whole being kept in place by a fifth wheel but a half inch thick, running in a grooved central rail, laid for the purpose. This additional wheel being attached to the carriage by a lever, can be raised at will by the driver, and the car runs off the track. This is done to turn out either for a car running in the opposite direction on the same track, (which saves a double track on a road but little used,) or for another vehicle, or to run more conveniently on a down grade.

☞ An ingenious arrangement for the artificial raising of water to supply power for a flour mill in Virginia, Nevada, is briefly described as follows: The process is nothing more nor less than to introduce steam—the exhaust of a non-condensing engine is sufficient—into a reservoir connected by a pipe with a supply of water below, and then by a jet of water to condense the steam, creating a vacuum, which is instantly filled with water to be discharged into a flume or reservoir, from which it is carried to the waterwheel.

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THE UNDERSIGNED HAVE THIS DAY FORMED A CO-PARTNERSHIP under the firm name of WHITE, FOWLER & SNOW, for the transaction of the Coal Business, at Trinity Building, No. 111 Broadway.
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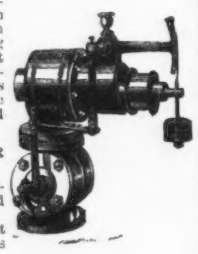

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Jan. 1. 1867 18:12:qp

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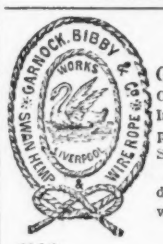

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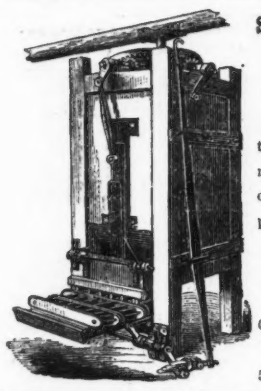

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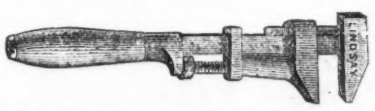

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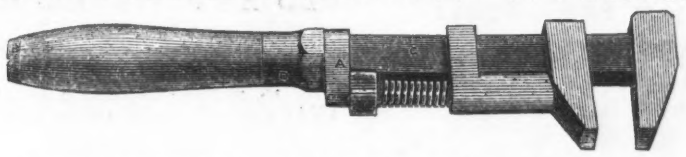

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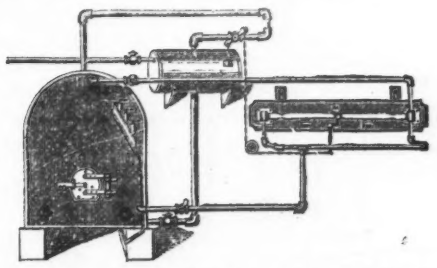

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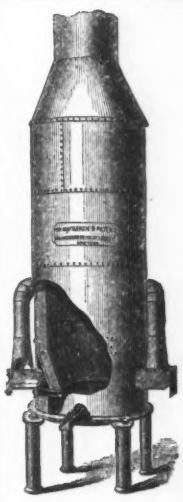

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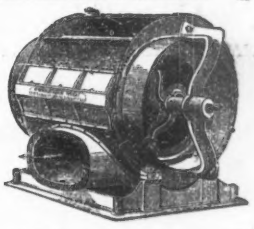

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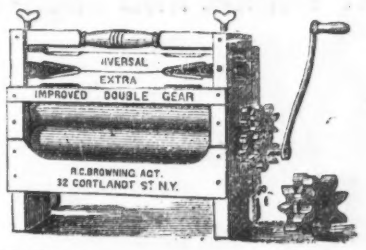

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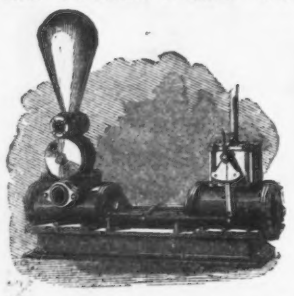

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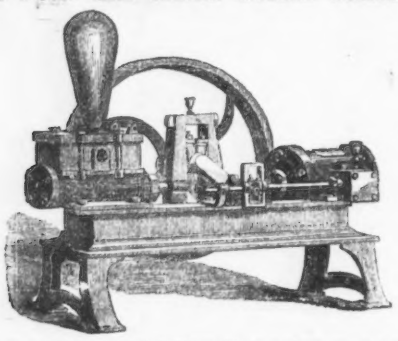

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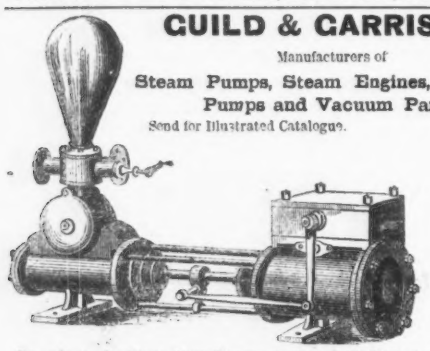

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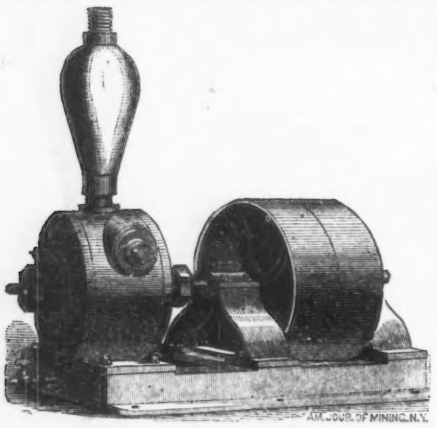

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PROSPECTUS.

EL CORREO HISPANO-AMERICANO;

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The much-to-be-regretted absence of adequate commercial intercourse between the Northern and Southern continents of America is mainly to be attributed to two causes. The first of these is the lack of proper information, among the industrial and agricultural classes of the Spanish American Republics, concerning the facilities and advantages offered by the manufactures of the United States; and the second is the entire absence of direct communication between the producers of this, and the consumers of those nations; while those who are really aware of the favorable opportunities here offered are deterred from availing themselves of such advantages by the fact that the expense of importations is not infrequently tripled or quadrupled by the passage of merchandise through three or four hands before reaching its final destination. England and France have commanded hitherto the markets of South America for all kinds of manufactures, while the United States, excelling in almost every department, and offering in addition the inducement of low prices, have enjoyed but a small share of the trade. Few manufacturers in this country are aware of the vast extent and profitable nature of this commerce; but the conviction of this fact is rapidly making itself felt; and there is urgent inquiry for the proper means of turning this tide, which now flows to Europe, towards the shores of the Northern Continent. The possible acquisition by the United States, at no remote day, of an important foothold among the Spanish American islands gives the subject at the present time great additional importance. Our naval supremacy in those regions should be accompanied by the commercial supremacy which it is chiefly useful to defend.

The best and surest means to this end is to furnish the Spanish American consumer with full and accurate information regarding the commerce, manufactures, mechanical arts, mining, metallurgy, railways, &c., of this country, setting forth in these departments our superiority to the nations of the Old World, and explaining the advantages offered in our markets.

Our conviction of the usefulness of such a step, based upon long and careful examination of the subject, and thorough personal acquaintance with each one of the Republics in question, their resources, interests and requirements, has received, of late, additional confirmation from communications addressed to us, as Publishers of the AMERICAN JOURNAL OF MINING, by prominent and influential citizens of Mexico and the other Hispano-American Republics, pointing out the expediency of either translating our Journal into Spanish, or publishing a periodical in that language for circulation in those countries. These gentlemen have urged us to put the plan into immediate execution, and promised us their influence and personal support.

We have therefore resolved upon the issue of "EL CORREO HISPANO-AMERICANO," for the purposes set forth above; and we feel assured that the nature of the Journal itself, together with the facilities we possess for its publication, and the patronage already spontaneously offered and secured, will render it not only the best medium of publicity for the manufactures of the United States, but one which cannot be superseded in point of universal circulation, efficiency of advertising, and economy of terms.

It will at once be evident, that the "CORREO HISPANO-AMERICANO" will not, like newspapers in general, depend upon partisan or political beliefs for its popularity. Politics having no place in its columns, it will have no rivals, will be free from all shackles of party spirit or interest, and will be welcomed in all circles and by all classes as a real friend, the bearer of useful information on matters of vital interest to all. Hence, it cannot com into competition with political journals of the day.

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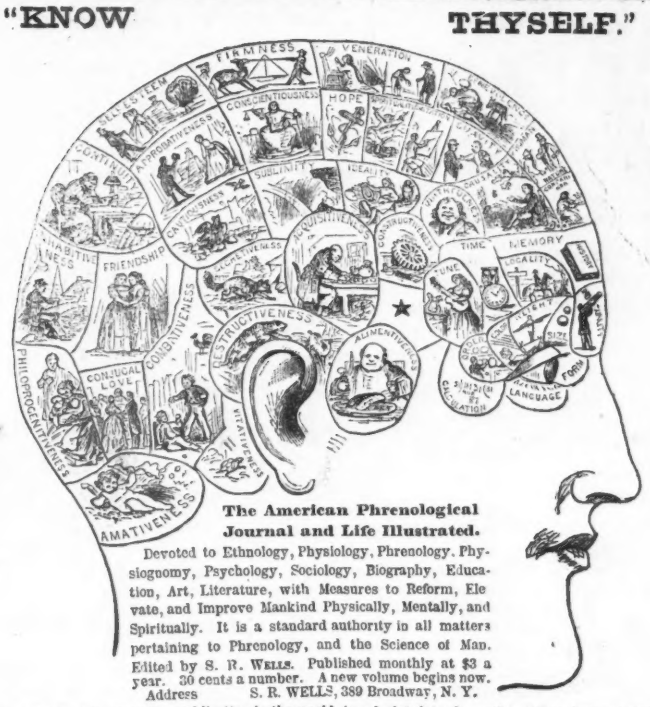

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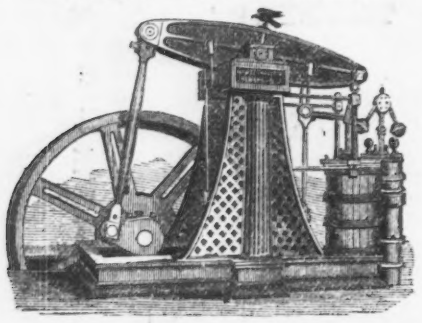

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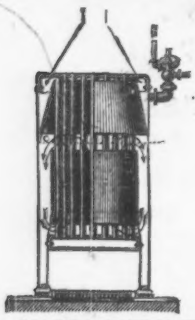

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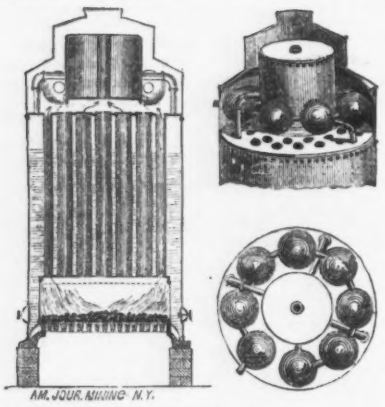

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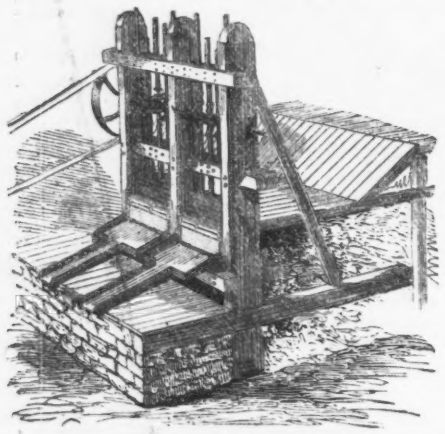

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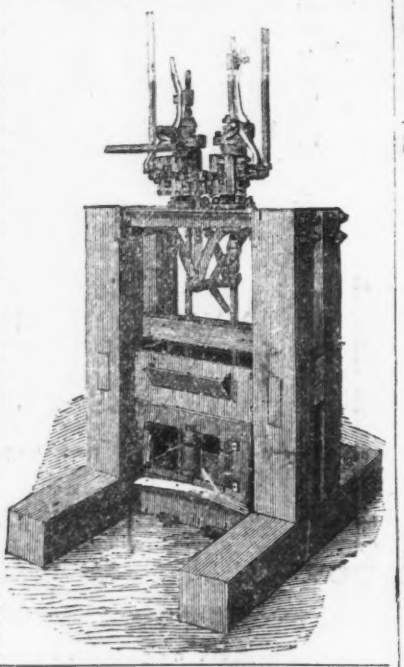

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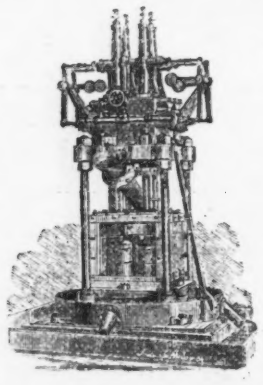

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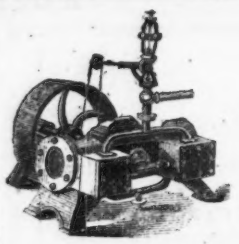

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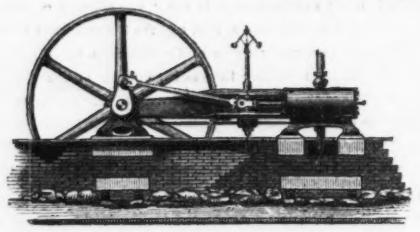

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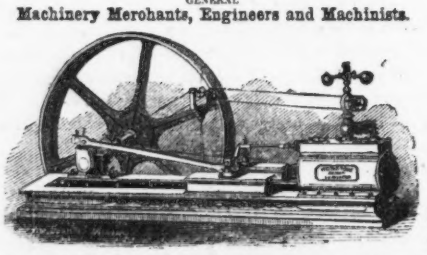

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